THE BUILDER
a Journal for the
ARCHITECT & CONSTRUCTOR

Vol. CLIX. No. 5104. Ninety-Eighth Year.

FRIDAY, NOVEMBER 29, 1940

REGISTERED AT THE GENERAL POST OFFICE AS A NEWSPAPER

PRICE NINEPENCE.

WALLBOARD SERVICE

MANY TYPES AND SIZES READY FOR IMMEDIATE DESPATCH

PHONE HOP 3311

Walter S. Jry LTD.

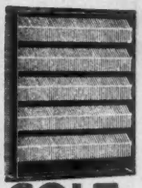
106-114 BORO HIGH STREET S.E.1

WAR EMERGENCY.

BASEMENT SHORES. "BIG BEN" EQUIPMENT FOR PROTECTION OF SKYLIGHTS, PLANT, ETC., AND OTHER AIR RAID PRECAUTIONARY MEASURES.

SCAFFOLDING AND LIGHT SCAFFOLDS FOR ALL PURPOSES.

'Phone: Walton-on-Thames 614 and 615



Problem of BLACKOUT VENTILATION solved!

Types for every purpose. Approved by Government Authorities and eminent scientists. Write for brochure.

COLT BLACKOUT VENTILATOR

Colt Ventilation Ltd., 110, Bush House, Strand, W.C.2.

The BOSTWICK GATE and SHUTTER CO. LTD.

A.R.P. DOORS & SHUTTERS GENERAL METALWORK

HYTHE ROAD, WILLESDEN, LONDON, N.W.10

ESCALATORS & LIFTS

J. & E. HALL Ltd.

ENGINEERS

DARTFORD, KENT, ENGLAND

Incorporating the business of

MEDWAY'S SAFETY LIFT CO., LTD.

The STEEL SCAFFOLDING CO. LTD.

"BIG BEN TOWERS,"

23 OATLANDS DRIVE, WEYBRIDGE, SURREY

DESIGNS COVERBOND FABRIC

STEEL REINFORCEMENTS LTD. ALMA STREET SMETHWICK STAFFS.

STEELWORK BY SHARMAN

Also Manufacturers of STEEL GAS AND SPLINTER PROOF DOORS

SWAN WORKS, HANWORTH, MIDDX.

Phones: Feltham 3007, Molesey 1789

LONDON OFFICE: 10 Nicholson St. MANCHESTER OFFICE 42 CHARLES ST

A. & P. STEVENL LTD LIFTS

PROVANSIDE WORKS GLASGOW

Rolling Shutters, Lifts

IRON DOORS, STAIRS, GATES.

DENNISON, KETT & CO., LTD. Tel.: Reliance 1664

Kenoval House, 226-230, FARMERS RD., LONDON, S.E.5.

LIFTS PORN & DUNWOODY LTD

UNION WORKS,

BEAR GDNS., LONDON, S.E.1. WAT. 7107 (3 lines)

MARBOLITH

DERMAS IMPREGNATED FLOORING

OVERCOMES SHORTAGE OF TIMBER SUPPLIES

Particulars and Samples from:

THE MARBOLITH FLOORING CO. LTD.

29 ALBERT EMBANKMENT, LONDON, S.E.11

RELIANCE 2062-3.

PERMANITE ASPHALTE

LIFTS by MORRIS of LOUGHBOROUGH and 39 Victoria Street London S.W.1

POSITIVE WATERPROOFING AND DENSIFICATION OF CONCRETE AND ALL CEMENT WORK

TRICOSAL

A. A. BYRD & CO. LTD., 11, QUEEN VICTORIA STREET, LONDON, E.C.4. PHONE: CITY 3088

EVANS LIFTS LTD

ABBEY LANE, LEICESTER.

London Office: 66 VICTORIA STREET, S.W.1

ALDOUS—CAMPBELL LIFTS

TEL.: HOP 2727 (2 lines). LONDON, S.E.1

THE SEYSSEL & METALLIC LAVA ASPHALTE CO.

MR. G. F. GLENN, Proprietors.

MOORGATE STATION CHAMBERS, E.C.2.

Telephone: METropolitan 0262.

RAGUSA ASPHALTE

NOTE TEMPORARY ADDRESS 18 GRANGE ROAD, SUTTON

TELEPHONE:—VIGILANT 6661-4-5

Painting means Protection

by using

For appearance—durability—and covering capacity, Fairfield specialities are the most satisfactory conquerors of any difficult job, whether due to atmosphere or weather.

USED WITH SATISFACTION AND SUCCESS EVERYWHERE.

CHYNALYKE ENAMEL

This enamel is the nearest approach to an actual china surface that has yet been produced. It has the power of retention of colour, the charm of glaze, and the appearance and washability of china.

Fairfield

TWOCOAT PAINT

A paint giving all the excellence and glossiness of finish associated with the best enamel. Economical, full bodied and free in working, with the maximum finish, both as to appearance and durability. Made in both Undercoating and Finishing coats.

Fairfield

WASHABLE DISTEMPER

is unique, in that it is an oil paint, but requires thinning with water for application. It is really washable, whilst its oil constituent makes for a very sanitary and cleanly result. It is invaluable for exterior use when mixed with Fairfield Petrifying Liquid, and any colour shade can be easily matched.

REMEMBER ALSO

Fairfield
FACTORY PAINT

OUR SOLUTION TO THE PROBLEM of Cheap, Effective, Hygienic, Factory Painting. Used with conspicuous success on Machine Shops, Warehouses and Factories.

FAIRFIELD
ALUMINIUM PAINT
Untarnishable—for use on Ironwork.

FAIRFIELD
ANTI-CORROSIVE PAINT
for protection of Iron and Steel in Red or Grey.

THE FAIRFIELD PAINT COMPANY LTD.

LONDON COLOUR WORKS, WHITE HORSE LANE, MILE END, E.1.

Telegrams: "CHYNALYKE, LONDON." Telephone: STEPNEY GREEN 3895.

"the House of Fairfield"

THE BUILDER

INCORPORATING

"ARCHITECTURE" AND "THE BRITISH ARCHITECT"

VOL. CLIX NOVEMBER 29 1940 No. 5104

REBUILDING

THAT we should even be thinking of the making good of war damage while still preoccupied with war-making may be taken as a symbol of our unbounded confidence in the final result. If the shadow of defeat had fallen across the prospect no such dreams of the future could have been entertained for a moment.

At the same time, we should do well to remember that we *are* preoccupied with war-making, and that it will be very easy to commit ourselves to the wrong course if we do not all interest ourselves in the prospect. Steps could be taken which it would be hard to retrace, and policies might take a definite shape such as we should not welcome had we the time to give to this problem of the future alone.

A great deal will depend upon the shape which will be taken by our social order and our economic structure after this great upheaval has run its course, and until then it is difficult to say upon what lines our plans should be directed. It may well be that we shall find ourselves, without dispute, and without revolution, in the ordinary sense of the word, a Socialist State, in which every citizen will be a servant of, and paid by, the State. Or it may be that some way will be found to maintain the more individualistic scheme of things to which we are used. More probably it will be some compromise between one thing and the other, whereby the State will stiffen its control while leaving the general system of private ownership to survive.

If, indeed, we were committed to the Socialist State, the rebuilding of towns and cities would be a job for the Civil Servant, and there would be no further argument about that aspect of the question. But if there is to remain any element of private ownership and individualism, then the old question between private practice and official architects looms up in its most acute form. To determine where the field of one form of architectural practice begins and where the other ends will certainly be no easier than it has been hitherto.

We have to consider what will be best for architecture, and not merely what will be best for architects. Will unity of control tend to smother the activities of individual genius, and shall we make a fair exchange between a unified scheme and the striking but often delightful differences between individual talents? The effect on architecture is bound to be decisive whichever way policy tends, and it is therefore a subject deserving of the closest attention. There are at present the signs that a large increase in the ranks of salaried architects is to be the first step in immediate preparations, and whereas this may mean no more than a staff to formulate the outlines of a scheme, it may, on the other hand, signify that the job is already committed to be carried out by the official architect. If this latter is the case, we are ready to admit that circumstances may in due course impose that choice upon us as the only feasible one, but we are quite certain that circumstances have not yet proved that to be the case, and that it would not only be premature, but possibly disastrous, to assume at this indeterminate stage that such was to be the inevitable future.

We have to watch very carefully, therefore, that any team of salaried architects which may be brought together to explore the likely conditions of the future does not become so deeply entrenched in the task that there will be no choice left open to us when the time comes at which a final decision will have to be made, and before private practice has been written off as out of date.

Private practice has, of course, provided many of the best arguments against itself, and some of its fruits within the last twenty or thirty years would suggest that any system would be as good, and most would be better. But that is merely a matter of period, and there is no doubt that even in the most clumsy-handed days official architecture was often far duller and much worse than private work. The point really centres upon the virtues or otherwise of individualism, the freedom of an individual to express himself in architecture. Wren managed to do so, despite activities on the grandest of scales, and Nash did not find the design of a mile of streets too much for the freshness of his mind. One can hardly expect Department "A" of some Ministry to infuse quite the same vitality into its work, after numerous officials have minuted the corners of the drawings.

It may well be that this problem of retaining some form of self-expression in the midst of a necessarily regimented society, and in matters other than architectural, will form the major problem of the post-war world, and that whether or not our escape from Nazidom finds us in another system of only a lighter shade of black will depend upon the success or otherwise with which we handle the individual.

We do not profess to be able to forecast how things will happen, and we are only concerned at the moment with avoiding any hasty step which may commit us in advance to some social scheme which may undermine those vital qualities which have produced the British character, and which are those which have made it possible for the Anglo-Saxon countries to stand up to the evil forces which have undermined Europe.

It is to be hoped that the R.I.B.A. is already concerned with this vital problem, and that it will publish the results of its counsels before it is too late.

MODELS FOR THE GEORGE CROSS AND THE GEORGE MEDAL

THE GEORGE CROSS.

THE CROSS DESIGNED BY MR. PERCY METCALFE, C.V.O.

THE MEDAL DESIGNED BY MR. G. KRUGER GRAY, C.B.E.

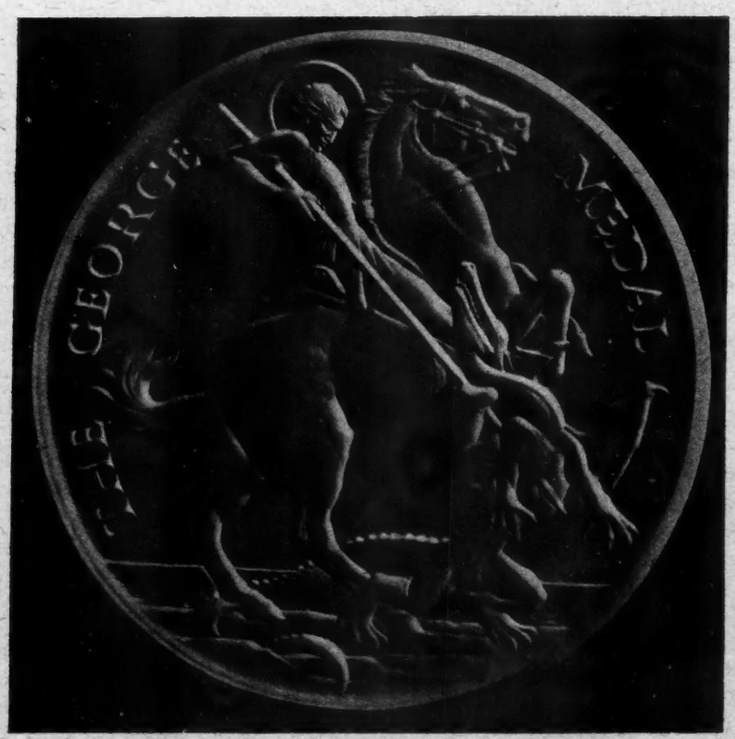
The models for the George Cross and the George Medal have now been approved by the King, and they are illustrated in the accompanying pictures.

The Cross is a plain silver cross with four equal limbs. In the centre a circular medallion bears the design of St. George and the Dragon, from the reverses of the gold coinage. The inscription "For Gallantry" appears round the design. In the angle of each limb are the letters G VI, forming a circle concentric with the medallion. The reverse of the Cross is plain and will bear the name of the recipient and the date of the award.

The Cross has been modelled by Mr. Percy Metcalfe, C.V.O., R.D.I. The ribbon is dark blue threaded through a bar adorned with laurel leaves from which the Cross is suspended by a ring.

The Medal is circular in form, 1.42 in. in diameter, and is struck in silver. Its obverse bears the crowned effigy of his Majesty surrounded by the inscription "GEORGIUS VI D.G.Br. OMN. REX ET INDIAE IMP." and is thus identical with that of service medals in general.

The reverse depicts St. George slaying the Dragon on the coast of England, and was modelled and adapted by Mr. George Kruger Gray, C.B.E., A.R.C.A., F.S.A., after the bookplate designed by Mr. Stephen Gooden, A.R.A., for the Royal Library, Windsor Castle. The design is circumscribed by the words "The George Medal." The ribbon is red with five narrow vertical stripes of blue.



THE GEORGE MEDAL.

NOTES AND NEWS

Mr. George Hicks's Ministerial Appointment.

THE building industry will wish to congratulate Mr. George Hicks, M.P., on achieving the rank of a junior Minister. As was announced last week, Mr. Hicks has been appointed Parliamentary Secretary to the Ministry of Works and Buildings. A portrait of Mr. Hicks and some details of his career are on page 526.

Air Raid Damage.

A NOTE was published a short time ago suggesting that members of the R.I.B.A. who were willing to give free advice to very poor house-owners concerning claims for compensation for damaged property should notify the local authorities in whose areas they practised or resided. It has since been suggested that there is also a class of citizen who, while he would not be justified in asking for or accepting *free* advice, would not normally go to an architect, although he would probably do so if he could obtain advice for a nominal fee. The War Executive Committee of the Council have considered this suggestion, and recommend it to members. The committee think that members who are prepared to render free service to the very poor or service for a nominal fee to those slightly better off, should give their names to their local Citizens' Advice Bureau, who would no doubt be able to make it known that such advice was available.

Damaged Buildings.

AMONG buildings of importance which have been damaged by enemy action are St. James's Church, Piccadilly; Coventry Cathedral; and Drury-lane Theatre. St. James's, Piccadilly, has been almost demolished by a large bomb which fell in the forecourt. The rectory was destroyed. St. James's was built by Wren between 1680 and 1684 and possessed an external pulpit. Coventry Cathedral has suffered severe damage to the body of the building; the spire and tower are, however, still standing. Drury-lane Theatre was damaged by a bomb which fell through the roof and wrecked part of the auditorium and the bar. No damage has, however, been done to the stage or any part behind the proscenium arch.

R.I.B.A. Library Hours.

FROM now until the end of winter the R.I.B.A. Library will be open from 9 a.m. to 4 p.m. As far as possible the full Library service will continue. Members, including those in the Forces, can have books sent to them from the Lending Library to any address in the British Isles, subject to the Librarian's discretion in the case of irreplaceable books and books of considerable value.

The R.I.B.A. pays outward postage to addresses outside the London area; members inside the London area can have books posted to them at their own cost.

Northern Architectural Students.

A CONFERENCE on the subject of "Training To-day and the Post-War Architect" is being held at Hull by the Northern Architectural Students' Association on December 14 and 15. The Association, in making this announcement, states that it has been realised by all thinking people that if the architectural profession is to fulfil the tasks expected of it after the war considerable reforms in architectural education will be necessary. Already, it is stated, this short week-end conference has found an enthusiastic response from many students in the Northern Architectural Schools. All students who can attend are cordially invited.

Among the speakers will be Mr. Henry Morris, M.A. (Director, Cambridgeshire Education Committee); Mr. Anthony Cox; Miss Justin Blanco-White, A.R.I.B.A.; Mr. Ralph Tubbs, A.R.I.B.A.; and Miss Judith Ledeboer, A.R.I.B.A. (Secretary of the 1940 Council).

London Rescue Services: An Appointment.

MR. J. H. FORSHAW, M.C., F.R.I.B.A., Deputy Architect to the London County Council, has been placed in charge of the Council's rescue and débris disposal services.

PRINCIPAL CONTENTS

ARTICLES	Page
REBUILDING	521
RECONSTRUCTION: 1940 COUNCIL'S MEMORANDUM ...	523
BUILDING: R. MYERSCOUGH-WALKER SUMS UP	524
WAR-TIME BUILDING PRACTICE—36. By R. Cotterell Butler, A.R.I.B.A	532
CORRESPONDENCE	534
WAR-DAMAGED BUILDINGS AND RATING	534
NEWS OF FORTHCOMING CONSTRUCTION	535-7
WAGES, PRICES OF MATERIALS ...	538-9
ILLUSTRATIONS	
MODELS FOR GEORGE CROSS AND MEDAL	522
"ROADMENDER" BOYS AND GIRLS' CLUBS, NORTHAMPTON. By K. Dalgliesh and R. K. Pullen ...	527
HOUSE AT WILMSLOW. By J. Hubert Worthington	531

IN 1915.

EXTRACT FROM *The Builder*, NOVEMBER 26.

TOWN PLANNING AFTER THE WAR.—The first national conference of housing societies and societies of public utility was held . . . under the auspices of the Garden Cities and Town Planning Association, with the object of providing for housing on town-planning lines after the war. . . . Eventually it was agreed that the best time for taking action would be "so soon as the end of the war could be seen approaching." A committee was formed representing the whole of the groups interested in the scheme.

COMING EVENTS

Tuesday, December 3.—Housing Centre. Luncheon: Mr. R. M. Titmuss, on "The Casualties of Environment." 1 p.m.

Wednesday, December 4.—Royal Society of Arts. Mr. D. E. E. Gibson on "Problems of Building Construction." 1.45 p.m.

Tuesday December 10.—Royal Institution. Mr. Philip Guedalla, on "The New World and its History." 2.30 p.m.

Wednesday, December 11.—Royal Society of Arts. Mr. J. S. Nicholl on "Road Transport." 1.45 p.m.

Friday, December 13.—Architects' Registration Council. Quarterly meeting. 66, Portland-place. W.1.

Tuesday, December 17.—Institution of Civil Engineers. Mr. A. G. Vaughan-Lee on "The Mohammad Aly Barrages." 1.30 p.m.

RECONSTRUCTION

1940 COUNCIL MEMORANDUM.

THE following Memorandum on Reconstruction has been submitted by the 1940 Council to the Prime Minister and to the Minister of Works and Buildings:—

"The 1940 Council welcomes the statement made by H.M. Government that the Ministry of Works and Buildings will not only undertake the organisation and control of building works, but will also consider the problems of reconstruction of town and country after the war.

"The Council desire to stress the need to plan from a national point of view in relation to the whole of the national resources.

"The Royal Commission on the Distribution of the Industrial Population reached the unanimous conclusion that the circumstances of modern industrial and urban life are such as to require the setting up of a national body for broad purposes which may be comprehensively described as Planning, and were agreed as to the broad principles of a National Town and Country Planning policy. Further, the Commissioners were unanimous that the patchwork of local planning now in hand, even if made to cover the whole country, could never give birth to anything in the nature of a really national plan. The Report of the Commission provides a sound basis for action, but it must be remembered that their terms of reference excluded consideration not only of the problems of agriculture, but also of other aspects of national life, relevant to the scale on which Reconstruction must now be contemplated.

"An opportunity undreamed of at the time of the Royal Commission was appointed now lies before us. If this opportunity is to be used to the full, the machinery for the development of a national scheme must be set up now.

"The 1940 Council desire to submit that it is of the highest importance that plans for Reconstruction should be based on a survey of the national resources in the fields not only of industry but also of agriculture and of amenities, and the relation of all these resources to the proper distribution of the population. Many items of such a survey have been carried out or are in hand, and our aim must be to prepare a national plan with the human needs of the population as its starting-point, and their greatest possible satisfaction as its goal.

"A plan conceived nationally will provide the opportunities to bring about that state of full employment which must be realised if the standard of living of the population is to be maintained and increased. . . . Only by such a plan can we hope to eliminate the social and economic crises which have often threatened our prosperity in the past, and open the way to a full community life for the largest possible proportion of the people. . . .

"To sum up, the 1940 Council welcomes the appointment of the Minister of Works, charged with the specific task of preparing machinery for post-war Reconstruction; submits that Reconstruction must be based on National Planning—that is, by organisation of the whole of the National Resources in relation to the human needs of the population; and urges on the Prime Minister and the Minister of Works that the scheme now in course of preparation must provide for full powers of constructive execution."

BUILDING: ITS PLANNED DEVELOPMENT

VIEWS OF THE INDUSTRY'S LEADERS SUMMED UP

BY R. MYERSCOUGH-WALKER.

Mr. Myerscough-Walker gives below the conclusions he has drawn as to the present state of the Building Industry, based on his interviews with several of its representative leaders, which have lately appeared in our pages. We would stress the fact that they are the views of an independent contributor and not necessarily those of *The Builder*.—Ed.

THIS is the most difficult article that I have ever committed myself to writing. In the past few weeks I have had reason to interview the leaders of the building industry on their plans for the future and their opinions of the present, and out of this series of conversations emerges the most confused and muddled set of ideas that I have ever come across. Simply, the building industry is a straggling collection of interests, and the vastness of the whole, combined with the divergence of ideas, is such that to attempt a tidy conclusion as I had originally intended is entirely out of the question. Accompanying these remarks is a table which gives some idea of the opinions of the various bodies in relation to a set of identical questions put to them.

These questions were proposed by the Secretary of one of the well-known bodies, who has intimate knowledge of the industry, and, although on the surface they appear to be harmless and even repetitive questions, they relate principally to an event which was foreshadowed and which has now taken place, *i.e.*, the formation of a new Ministry of Building.

The Lack of Co-operation.

All responsible leaders of the industry must have been aware that such an event was likely to take place. It is the most fundamental and biggest move that has been made, I imagine, in the history of building in this country, and there was not one shred of evidence to suggest that the leaders have got together and discussed what their attitude was to be collectively in the event of this Ministry being formed.

That in itself is the biggest criticism that I can suggest in relation to the industry.

The reader can judge by the answers that the leaders are agreed on one of the points, *i.e.*, that it was the fault of the Government Departments in not correlating their programme with sufficient coherence for the building industry to know where it stood and how to set about the job. Almost without exception it is argued that the bureaucratic control has been so muddled that it was not possible for architects, surveyors, contractors, operatives and manufacturers to organise their resources into sufficient form.

What damage the industry has suffered from this lack of coherence is incalculable, and to enter into the questions as to how it occurred requires an analysis of the political form in this country during the past few years which cannot be gone into in this article.

Unfortunately, it is this political basis which is more important than the building industry, because the latter is only an echo, particularly in war time of Government policy, when the Government is the only client existing in the country.

Free Parliament has been put forward as the ideal method of State Government, but if the result is inefficiency, then the questions of free Parliament and how such inefficiency arises are questions not only for the voters but for the leaders of the big industries.

The Industrial Leaders.

These leaders I have found to be ignorant to a great extent of political history, and that is another grave criticism that I have to make against men of middle age placed in responsible positions. With all the blame that these people attach to the Government, they must not be blind to the fact that they themselves did not in any way co-operate to put forward schemes to the Government which showed a collective way of working throughout the industry.

Power-mongering and selfishness are the basis of it, and I do not think among intelligent people it can be denied that each body of the building industry is afraid of some other body taking power and attempting to dominate the whole.

I have argued this point with various people and put to them such simple questions as why a shelter programme could not have been evolved by the industry for the use of the Government; why the requirements of camps and ordnance factories should not have been analysed and put into shape in the form of a possible programme; why defence works should not have been researched upon. The answer of the employers is that the architects should have put forward the ideas and that they would have carried them out; the answer of the manufacturers is that they were unaware of what materials would be used, and what quantities, and so on.

As I see it, if shelters were to be—as one example—gone into for the purpose of preparing a programme, then the architects should have consulted with the employers about plant and the capacity of the plant. The employers should have consulted with the operatives about man power. The manufacturers should have consulted the architects about available materials. It could only have been done collectively, and not one thing has been done about it except in scattered form by a few enterprising individuals or small groups, and those small groups or individuals, idealistic as they may be, have neither the resources nor the lobbying power of the more well-established bodies.

Civilian camouflage has been a disgrace as an example of organisation. The waste of material presents the same sad picture. The extravagant dissipation of architectural energy by a lack of reservation is another. The futility of the shelter system is a further example of inefficiency. The engineers taking over factory building and ousting archi-

SUMMARISED ANSWERS TO QUESTIONS.

QUESTIONS.

1. *Are you satisfied that architects, surveyors, contractors, etc., are making the best possible contribution to the national war effort?*
2. *In what way are they falling short of their maximum contribution?*
3. *What form of better co-ordination of effort in the interests of the national war effort would you suggest?*
4. *What direction do you think better organisation or co-ordination between the organised sections and the Government Departments concerned with the war effort should take?*
5. *Do you think a more comprehensive form of liaison between architects, surveyors, etc., and the Government as a whole is desirable?*
6. *Do you think that one single Department for dealing with all building matters (there are now seven or eight*

W. H. ANSELL, M.C., F.R.I.B.A.

1. Not satisfied.
2. Not the fault of the building industry. Fault lies with Departments and Ministries. Findings of the Select Committee on National Expenditure proved the deficiencies. Residential speculative builders taking on large building and engineering jobs, and architects in worse position than contractors. Too much done with no architectural planning or supervision.
3. The co-ordination or organisation in certain neighbourhoods; formation of small building industry units in neighbourhoods; architectural organisation, labour, supply of materials, panels of architects, builders, manufacturers, and utilising, the services of

HOWARD ROBERTSON, F.R.I.B.A.

1. No.
2. Architects not being utilised. Defence works inefficient through lack of architectural supervision. Surveyors being used to do architects' work. Contracting work not distributed. Mushroom firms appearing. Contractors suffering from lack of correct drawings.
3. Too late to do much. Committees set up do not seem to be allowed to function. Hold-up in the Government at some point. Means for establishing a better use for the industry should now be investigated and planned.
4. By setting up a proper scheme of consulting with, forethought have been the

GEORGE HICKS, M.P.

1. No. I have not been, nor am I now, satisfied that architects, surveyors, contractors, etc.—the decisive personnel of the Building Industry—are making the best possible contribution to the national war effort.
2. Falling short in various ways. Consequences of the impact of war on the Building Industry. Especially in regard to Civil Defence and A.R.P. Expert and specialised building knowledge and talent—in some cases structural genius—is not being used. Folly to let our architects, surveyors, builders, etc., drag along. How lacking in understanding, vision and

H. J. C. JOHNSTON, PRESIDENT, B.I.N.C.

1. The employment of the resources of the industry is unbalanced.
2. Too late to correct many of the mistakes.
3. Still possible to enlist a greater measure of assistance from the smaller type of local contractor and material manufacturer.
4. Primary and most important necessity in any national building is for the complete planning of the whole process, based on the maximum use of every available resource from the architect to the manufacturer.
5. Lack of co-ordination exists on part of the Govern-

COLIN PENN, P.A.A.S.T.A., and DAVID PERCIVAL, A.R.I.B.A.

1. No.
2. Present system offers no incentive to such a contribution. Those architects not in the army are subordinated to engineers, leading to waste and bad planning. Vicious cost-plus-profit system short-circuits some of the quantity surveyor's most necessary work. The de-reservation of the architectural profession means that architects are not available for such urgent work as air raid shelters and evacuation buildings.
3. Doubtful whether the building industry as it is can be better co-ordinated, because it is organised for private profit. We agree with

CHARLES KERRIDGE, PRESIDENT, N.F.B.T.E.

1. I am satisfied that there is a willingness on the part of architects, surveyors, contractors and operatives to make a better contribution to the national war effort, more than they are permitted to do by present conditions.
2. Suffering from a failure by the Government to co-operate with the industry intelligently. Such a well-organised industry could have rendered inestimable service to the Government in the planning of the programme of work necessitated by the advent of the war. Instead the industry was not usually consulted at all. Scarcity of materials such as timber,

Departments concerned with building activity) would be a proper measure of

Departments concerned with building activity) would be a proper measure of administrative simplification and an advantage from both the national and the Industry's point of view?

7. *Do you think the purpose of the building and associated professions would be better served by a Ministry of State (such as a Ministry of Building) or by the extension of an existing Department (say, H.M. Office of Works)?*

8. *Do you think that in the event of the establishment of a Ministry of Building the following matters should come under the control and administration of such a Ministry?*

(*a*) *Town planning.*
(*b*) *Housing.*
(*c*) *Location and siting of industries.*
(*d*) *By-laws and building regulations.*
(*e*) *Standards of quality and dimensions.*
(*f*) *Research.*
(*g*) *Training and entry into the industry.*
(*h*) *Technical education and instruction.*

9. *Do you think that long-term policies of public works development, including such matters as the provision of the highest possible structural standard and accommodation of schools, hospitals, and associated clinics, social amenities and public administrative centres generally, should come within the purview of such a Ministry?*

10. *Do you think a long-term policy and programme of public works development is in the national interest, and, if so, for what reason?*

11. *Do you think that a widespread Colonial development policy based on public works and services programmes for the Colonies is a matter which should come within the scope of a Ministry of Building?*

12. *Do you think that a policy for the development of British building in foreign countries should be a proper subject for development by the Ministry of Building?*

13. *Do you think that fostering the exportation of British building materials to all parts of the world should become the concern of a Ministry of Building?*

14. *What form of contact between the building industries and the proposed Ministry of Building do you think would best suit national ends?*

15. *Do you think, for instance, that representatives of the building group of industries should be a recognised part of the Ministry?*

16. *Do you think it would exercise a progressive influence on building development if the building industry had available to it such a Ministry of Building as would enable the industry to put forward proposals for dealing with matters of difficulty or for the further development of trade?*

supply of materials, panels of architects, builders, manufacturers and merchants loyally working together.

4. Covered by above.

5. Covered by above.

6. More efficient to have one Department.

7. No Ministry wanted that would dominate the industry. Freedom essential for development. The co-ordination of a Government Department is more the ideal suggestion. The reorganisation properly of B.I.N.C. Visualises Ministry for co-ordination demands that the Government fills in the programme and hands to the industry to carry out freely.

8. Ministry of Building should carry no more weight than any other Ministry.

9. Not in the national interest, except in the placing of satellite towns and the location of industry.

10. Long-term planning inflexible. Does not allow for changing conditions of national life.

11. Should remain a scheme between the Governments of the various countries, a concern for the Dominions and Colonies.

12. As above.

13. As above.

14. Advisory committee to be in closest touch with the Ministry.

15. Do not think representatives of the building industry should be part of the Ministry.

16. Do not want enormous and costly Ministry which would interfere with the conduct of the working hand, but a small Ministry and constant liaison with Advisory Committee.

and utilising, the services of the industry as a whole. Government Departments should not continually try to deal with the Industry sectionally.

5. Yes.

6. A single head Department, with offshoots. Decentralisation remains desirable, but there should be a co-ordinating head Department.

7. By a Ministry of State eventually, or some department created for the purpose. The Office of Works as at present constituted does not provide the necessary framework.

8. I would include (*a*) to (*f*) and deal with them through Departments as at present, but co-ordinated under the Minister of Building.

9. Yes.

10. Yes, to help obviate booms and slumps, unemployment, etc.

11. No; except by mutual exchange of views and experience.

12. Yes, in conjunction with foreign policy and the Departments dealing with it.

13. Yes, as answered in 12.

14. The Government to have contact with Industry through some representative organisation such as B.I.N.C.

15. No, only as contacts and advisory members.

16. Yes, most certainly. That is what has been and is lacking. It will be necessary if post-war reconstruction is not to be a muddle.

forethought have been the Government Departments.

3. An army of construction. Forces of the constructional industries should be organised and co-ordinated. A great force dealing with the practical tasks of structural defence and of clearing the wreckage and repairing the damage.

4. Can only take place under Government auspices, and as the result of overriding Government control. Only the Government possesses the requisite authority to do what is required.

5. Yes.

6. Yes.

7. Yes. Ministry of Building, Ministry of Construction, whatever name it be called, does not matter so much. What is imperative is that it should be as aggressively operative as, say, the War Office or Admiralty or Air Ministry.

8. Certainly. All the items indicated would, naturally, come under the control of the Ministry of Building.

9. Yes. The best town-planners should be in constant service. Where devastation has been caused over large areas, the fullest advantage should be taken to ensure that rebuilding, zoning and other essential measures are adopted.

10. Certainly.

11. This is a matter which might well be dealt with by a committee of experts, in relation to the Ministry.

12 and 13. These also.

14. Sad experience has proved how hampering has been the effect of the Civil Service and the Government Departments as they exist to-day. Certainly the leading and decisive positions in the Ministry of Building should be held by men experienced in building and civil engineering.

15. Hardly that. The establishment of responsible media for constant consultation and co-operation.

16. Certainly.

ment Departments in connection with their building programmes.

6. I do not consider that it would fall within the orbit of our system of government to establish at this time a Ministry of Building.

7. In view of the objection to a Ministry, an extended Office of Works is better.

8, 9, 10, 11, 12, etc. Interview did not cover these.

the building workers who protest against the present inefficiency and say that the only way out is nationalisation under democratic control.

4. Better co-ordination is made impossible by the basic faults of the system. To make money is its chief object, and the building industry may therefore, from that point of view, be regarded as 100 per cent. efficient!

5. So far the Government has ignored sound technical advice. This suggests a change of Government. The new Ministry will not solve the problem because Ministers carry out the policy of the Government.

6. Abstractly, yes; but it depends in practice on the administrators and their purpose.

7. This is a question of detail which must be subordinate to major questions of policy.

8. It seems obvious that the new Ministry must include (*a*) to (*f*) but we see no reason why (*g*) or (*h*) should be excluded from the general system of technical education—which itself needs revolutionising. Links with industry would, of course, be necessary.

9. Yes.

10. Yes, for obvious reasons.

11. We believe that such a programme is very necessary in the Colonies; that they should be allowed to state their needs to their own Minister of Building, to which we could very well give technical advice based on our own experience.

12. One more possible cause of war.

13. At present there is no surplus of building materials. No doubt such products are being and will be exported, but at the expense of our own urgent needs.

14 and 15. The Ministry should not be controlled by the Building Industry. We believe in control by and in the interest of the consumer.

16. No; not as the industry is at present organised.

were used up with prodigal disregard for the wants of the next few months.

3 and 4. Your third question gives the key to its answer. Architects, surveyors, master builders, civil engineering contractors, and operatives are all organised on a national basis. A national construction army is available to the nation for a national job and the best form of organisation must obviously be a national one.

5. Yes.

6—8. Now the Government have appointed a Minister of Building, and have seen fit to absorb into this office the present Office of Works, a detailed reply to these questions might be embarrassing.

9 and 10. In the past public and Governments have too often thought of public works as relief works. Clerks and salesmen are not the best people to wield picks and shovels. Stop thinking of public works as relief works; remove the dead hand of bureaucratic control; and the industry would be perfectly capable of developing and carrying through a long-term policy of planned reconstruction.

11, 12 and 13. At present the Department of Overseas Trade is giving every encouragement to the development of our exports and there have been formed about 270 Export Groups, including one for the Constructional Industries. It is difficult to see what good a Ministry of Building could do overseas, particularly as such a Ministry would have its hands full with problems at home which mostly result from lack of foresight on the part of the Government Building Departments. Let us foster the undertaking of contracts overseas by British contractors.

14, 15. If the new Ministry should adopt the old-fashioned policy of setting up numerous Advisory Committees of a type which simply serve as effective smoke screens, behind which the Department may shelter, it will be a very bad thing for the industry.

16. The mere establishment of a Ministry of Building does not necessarily imply that such opportunities would be available to the industry.

tects is yet another. The money-grabbing which has led to the abuses of the cost-plus-profit system has brought on the head of the industry very justifiable criticism.

It is a perfect picture of chaos in what is the most fundamental quality of people's lives, *i.e.*, the buildings in which they live and work, and the places where they take shelter from danger.

I believe, categorically, that the building industry has failed utterly in its duty, and the result of such failure has now manifested itself in the appointment of a Ministry of Building which may well take the power out of the hands of the industry and leave them no option but to be dictated to as to how and when their capacity can be used.

The jerry-built houses, the trade union fights, the materials ramp, the architect divorcing himself from building proper, the speculation which has been going on in land values—in short, the unfortunate circumstances which have been accruing for the last 40 years—are the things which have brought the industry to this present pass.

I personally feel it is too late now to do anything about it. There is no advantage whatever to be gained from an attempt at reorganisation. Any suggestions are merely the desperate cries from people who still live under the illusion that something can be done about it. Lord Reith has taken over, and it remains to be seen whether he can pull the industry into shape. If he does so, then it will be a better thing than the previous confusion.

Lord Reith's Opportunity.

In *The Builder* for November 22 is the reply of the Minister to Lord Esher's expression of fear of bureaucracy entering the building industry. He said that the State was not to be trusted in these matters, and hoped that Lord Reith would keep in close touch with the R.I.B.A. and Sir Edwin Lutyens's R.A. planning committee. I can only hope that Lord Reith keep in touch also with bodies which are much more vital than these two.

There is no point in repeating in detail the findings of the Minister of Works and Buildings up to date. It is significant that the pre-war personnel figure of H.M.O.W., which was 120,000, has now been raised to 215,000, and that new work includes ordnance factories for the Ministry of Supply, stores for the Ministry of Food, hospitals for the Ministry of Health and Pensions, and to have some co-ordination with the Ministry of Aircraft Production. All this apart from works and buildings priority. As it is, camouflage defence works and the like are already under Government control, and this means that the greater part of the building activity will be in the hands of the Ministry of Works and Buildings.

It is a vast and amazing change that has suddenly taken place. Architects, you may regard yourselves as with one client—the Government; employers, you can regard yourselves as employed by one client—the Government; operatives, you can look to your activities as being dictated not by the employers, but by the Government; manufacturers, your materials will be directed through one channel—the Government!

Just see that you have a right Government. There is nothing more you can do.

READERS' VIEWS

To the Editor of *The Builder*.

Sir,—Are Mr. Ansell's replies to Mr. Myerscough-Walker the expression of personal opinion or of the R.I.B.A. as a whole?

By virtue of his office no president can speak in public on a matter of professional and public policy without his words having presidential significance. What a president says quite definitely commits his society. Whether he likes it or not, what Mr. Ansell says will be taken as the opinion of the R.I.B.A. It is therefore an obligation, a matter of duty and conscience, for him to make certain that when he speaks he is voicing the profession's opinion. But Mr. Ansell himself, as a Past Hon. Secretary and as President, leads those responsible for the suppression of the R.I.B.A. elections, the infrequency of council meetings, and the suppression of general meetings. He has, in fact, contributed positively to the isolation and impaired prestige of the presidency. Without real contact with the membership through an *elected* council, committees and meetings, the President cannot know what the Institute's opinion is.

Mr. Ansell and his executive caucus are, in fact, running the Institute dictatorially. This must be understood by architects.

Mr. Ansell's ponderous moralising has no more authority than the opinions of any other elderly individualist private architect. It is unfortunate for the profession that people outside who do not know that Mr. Ansell is not elected democratically and has no constitutional contacts with the profession may think that he speaks for it.

Marjorie Tall, A.R.I.B.A.
54, Hogarth-road, Earl's Court, S.W.5.

To the Editor of *The Builder*.

Sir,—Mr. Myerscough-Walker, who will no doubt remember me as an architect with considerable experience of what he calls "capitalistic omnibuses," has started a furore of discussion about the Ministry of Building and its relationship to the architectural profession and the building industry generally.

These very fervent discussions seem to me to be entirely abortive, since it certainly appears that this "new" ministry is merely the existing Office of Works under a new name, and hoping—to quote one of your recent and apparently senile correspondents—"to be blown up to the dimensions of an ox."

The department in this form will, of course, suffer, as all too many other existing Government Departments do, from the efficient but unimaginative and cumbersome hand of the professional Civil Servant.

I therefore propose the creation of an entirely new Department which might possibly be called the Office of Science and Art, or anything else suitable.

This Department would have as its responsibility nothing less than the future of the country (for Science and Art are indissolubly one), and any country which fails to recognise this will fade into insignificance.

I am sure all young architects (and some older ones) will understand that my suggestion is not for the initiation—to borrow a phrase from student days—of an "arty and crafty" Department, but one composed of individuals capable of exercising a broad, daring and inspiring influence over such problems as Education, Health, Transport, Building, Communications, Food, Sport, Entertainment, Empire development, etc., and linking them with the appropriate professional men and women everywhere in the country. It must be the clearing-house for the country's soul and for the healing of its wounds.

I see also in this suggestion how the enmity existing in some cases between large commercial building and other creative combines and the professional experts can be overcome. The heads of these concerns are human beings, not adding machines, and any control from the new department would not interfere with what may be called the "pure business" side or hamper the commercial progress of such firms, having as they do an immense value to the community.

Architects and their organisations must strive continuously for the formation of this Department, or otherwise history will repeat itself and the great opportunities following the conclusion of the war will again be at the mercy of unscrupulous financial wizards whilst our ancient profession of architecture looks on without a fight left in it.

I am afraid that most of the charming old gentlemen of the profession will not help much in this crusade. They are the defeatists, the Petains of the profession. It is mainly to the younger men that I make the appeal.

G. E. Bright, A.R.I.B.A.
Warrington, Lancs.

THE MINISTRY OF BUILDING AND MR. GEORGE HICKS, M.P.

MR. GEORGE HICKS, M.P.

The King has been pleased to approve that Mr. George Hicks, M.P., be appointed Parliamentary Secretary to the Ministry of Works and Buildings.

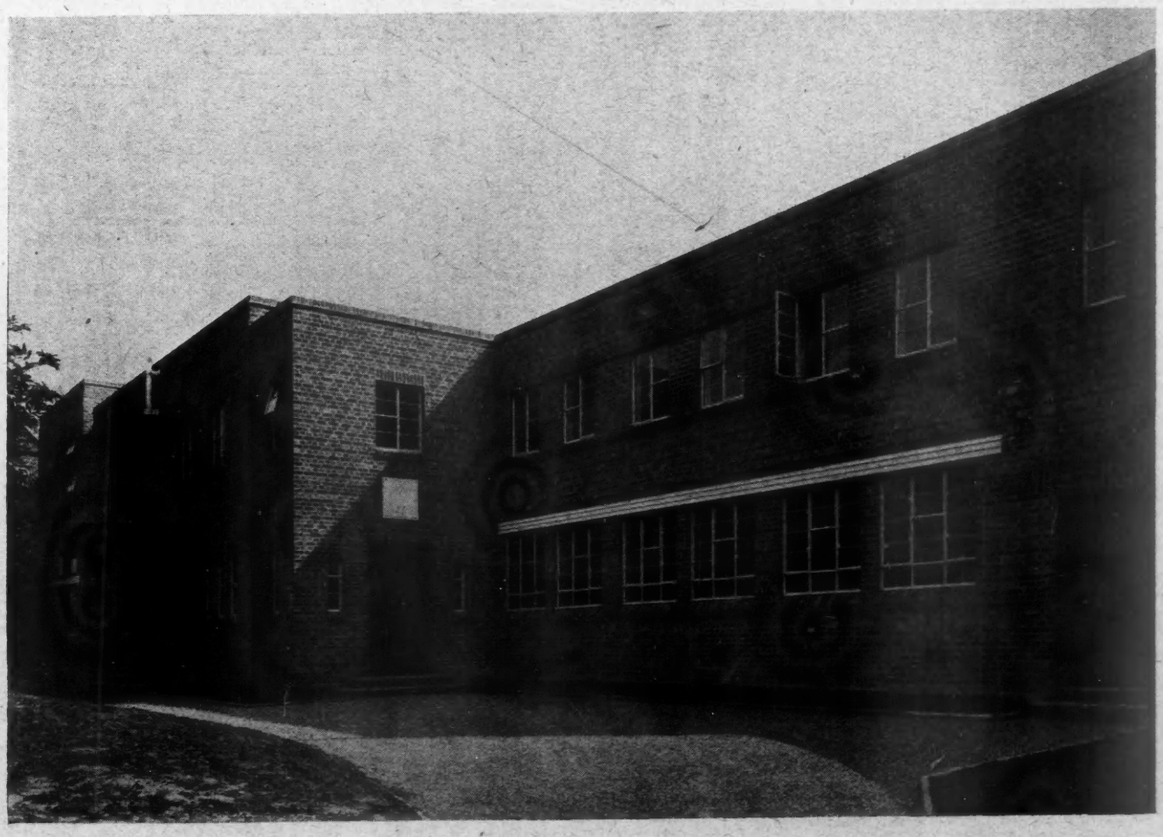
From 1931 Mr. Hicks has been Labour Member for East Woolwich. He has had a life-long association with the building industry, both as craftsman and trade union organiser. Having played a leading part in the amalgamation of building trade unions, Mr. Hicks in 1921 became general secretary of the Amalgamated Union of Building Trade Workers, and he has held that post ever since. He has been released from these duties to undertake his new appointment. In 1926-27 he was chairman of the General Council of the Trades Union Congress. He is a Vice-President of Building Industries National Council, a body in which he has taken considerable interest since its formation in 1931

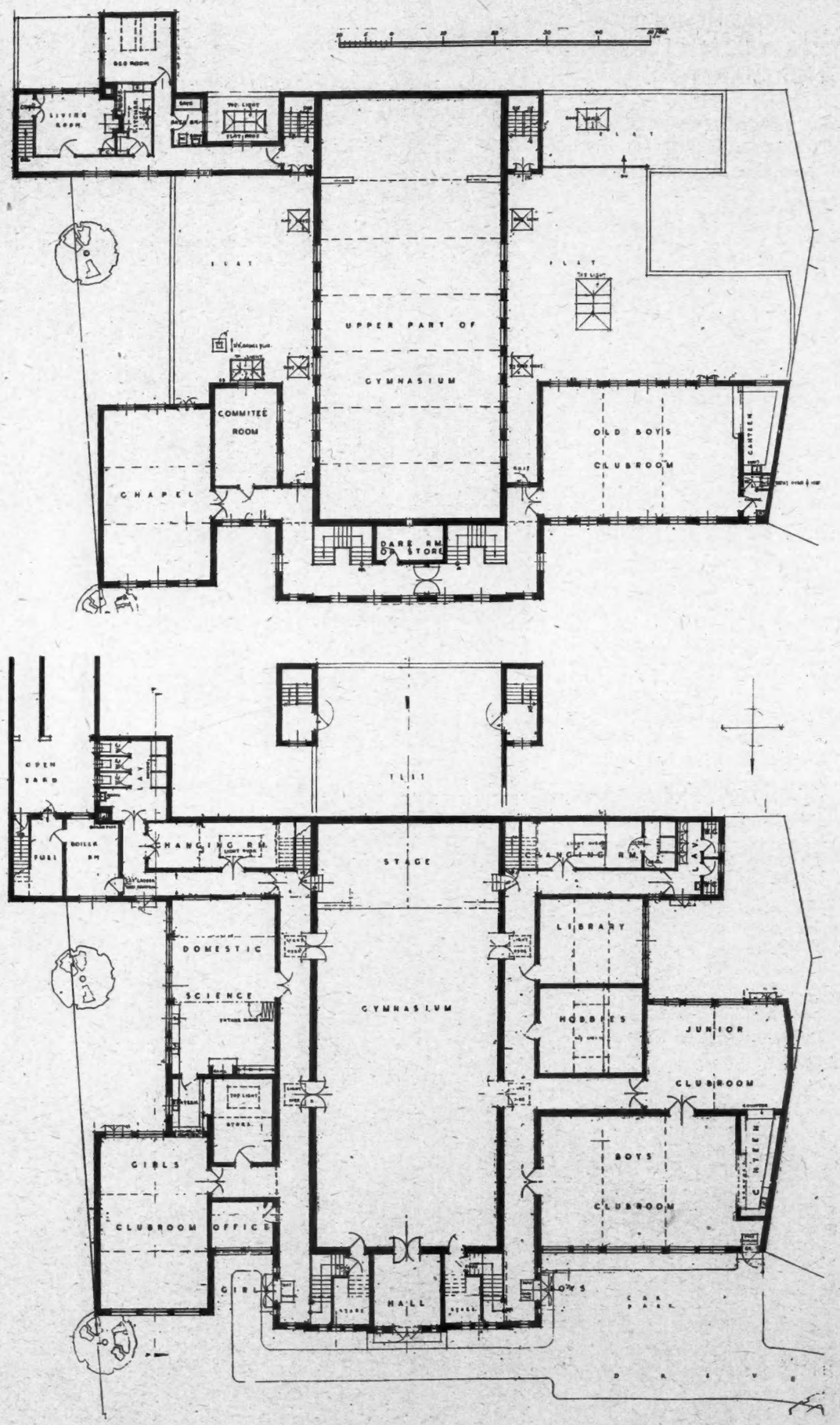
THE "ROADMENDER" BOYS' & GIRLS' CLUBS, NORTHAMPTON.

MESSRS. KENNETH DALGLIESH AND ROGER K. PULLEN, F. & A.R.I.B.A., ARCHITECTS.

Right: DETAIL OF MAIN] ENTRANCE.

Below: VIEW OF MAIN FRONT.



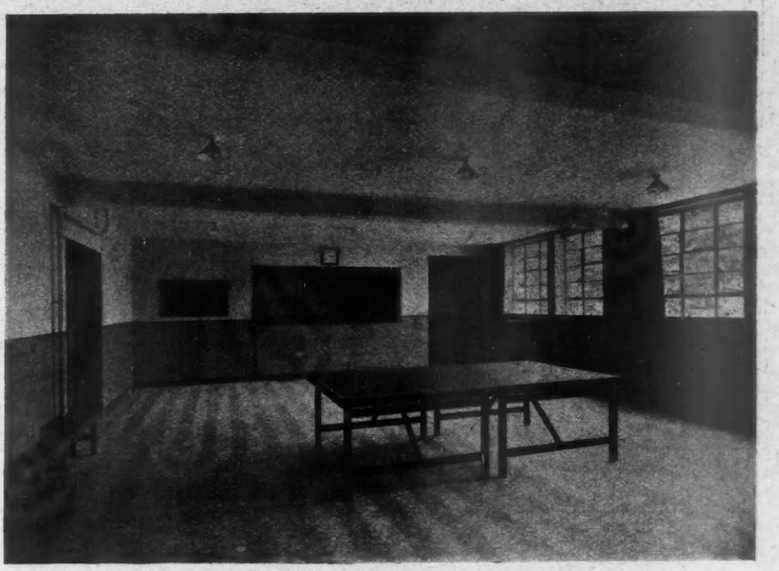


GROUND- AND FIRST-FLOOR PLANS.

THE "ROADMENDER" BOYS' AND GIRLS' CLUBS, NORTHAMPTON.

THE "ROADMENDER" BOYS' & GIRLS' CLUBS, NORTHAMPTON.

MESSRS. KENNETH DALGLIESH AND ROGER K. PULLEN, F. & A.R.I.B.A., ARCHITECTS.



BOYS' CLUB ROOM.

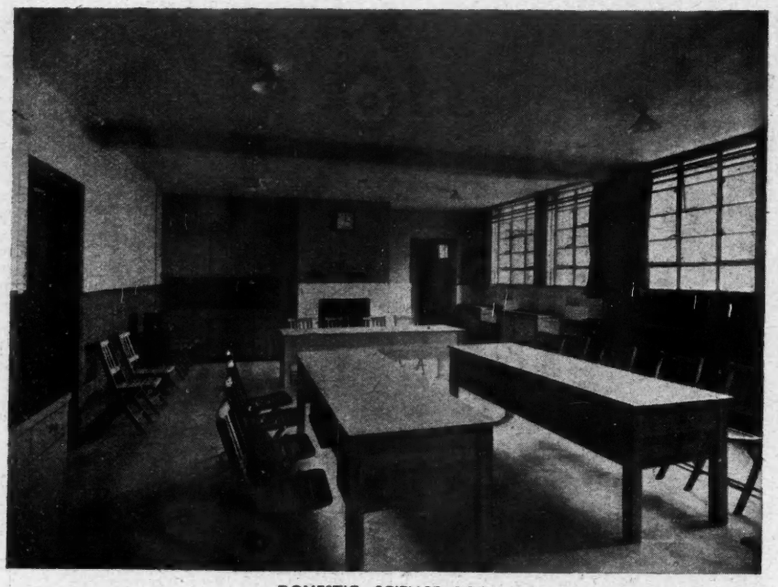
THESE clubs, which were recently opened by H.R.H. The Duchess of Gloucester, really consist of two separate buildings with certain rooms common to both parts, as in the case of the gymnasium, stage and chapel.

From the main road, green open-panelled gates bearing the name and crests of the clubs, open into a drive leading to the main entrance, which leads through a small entrance hall into the main hall. This is also fully equipped as a gymnasium, at the far end being a spacious stage. An interesting feature in the hall is the treatment of the acoustic tiles on the ceiling.

The gymnasium divides the boys' and girls' sections of the building from one another, but both have direct access to it, and are approached from separate entrances on each side of the main entrance. Above the entrance hall and overlooking the hall is a small storeroom which can be quickly transformed into a projection room for cinema shows. On either side of the entrance are cloakrooms for use on such an occasion.

The Boys' side of the building

THE HALL AND GYMNASIUM.



DOMESTIC SCIENCE ROOM.

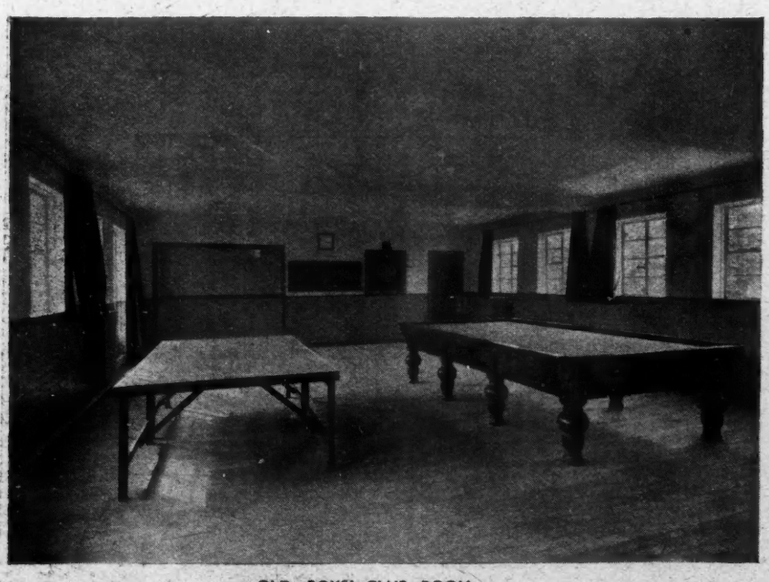
consists, on the ground floor, of a large well-proportioned club-room for boys of 14-18 years of age, complete with fully equipped canteen and facilities for billiards, table-tennis, darts, etc. The adjacent junior boys' club-room is also served from the same canteen and, while connected with the main club-room, has its own entrance; there is also access to an open internal court. Other features of the Boys' section include a well-lit handicraft room and a library. On the first floor there is a well-equipped club-room for old boys (from 18 upwards), very similar to the main club-room below, and with its own lavatory accommodation.

On the Girls' side there are similar features—a large and cheerful club-room with canteen, ping-pong tables, dartboards and wireless. There is a small library which can also be used as a committee room. A special feature is the well-equipped domestic science room, with full cooking facilities and built-in fitments. There is a small room for the use of the girls' leader and medical purposes. An office has also been included immediately inside the Girls' entrance.

Both sections are provided with changing-rooms, lavatories and showers. These are situated on either side of the stage, and can be used as dressing-rooms when the stage is in use.

Above the changing-rooms on the Girls' side is the warden's flat, with direct access from the club, and complete with sitting-room, bedroom, modern bathroom and kitchen. There is also a private entrance.

The building has been planned with a view to further expansion, both behind and also over the gymnasium, the roof of which has been specially prepared as a playground with access from both sections of the club. It was intended to enclose this playground, but the netting required is now being used for more vital purposes.



OLD BOYS' CLUB ROOM.

The architects, when planning this building, had to contend with the problem of providing almost two separate clubs, but at the same time arranging these in such a manner that, while certain rooms could be used by both sections, they could do so without interfering with each other. Each section is decorated in distinctive colours.

There is a pleasant little chapel where services will be held, but finishing touches are being withheld for the time being.

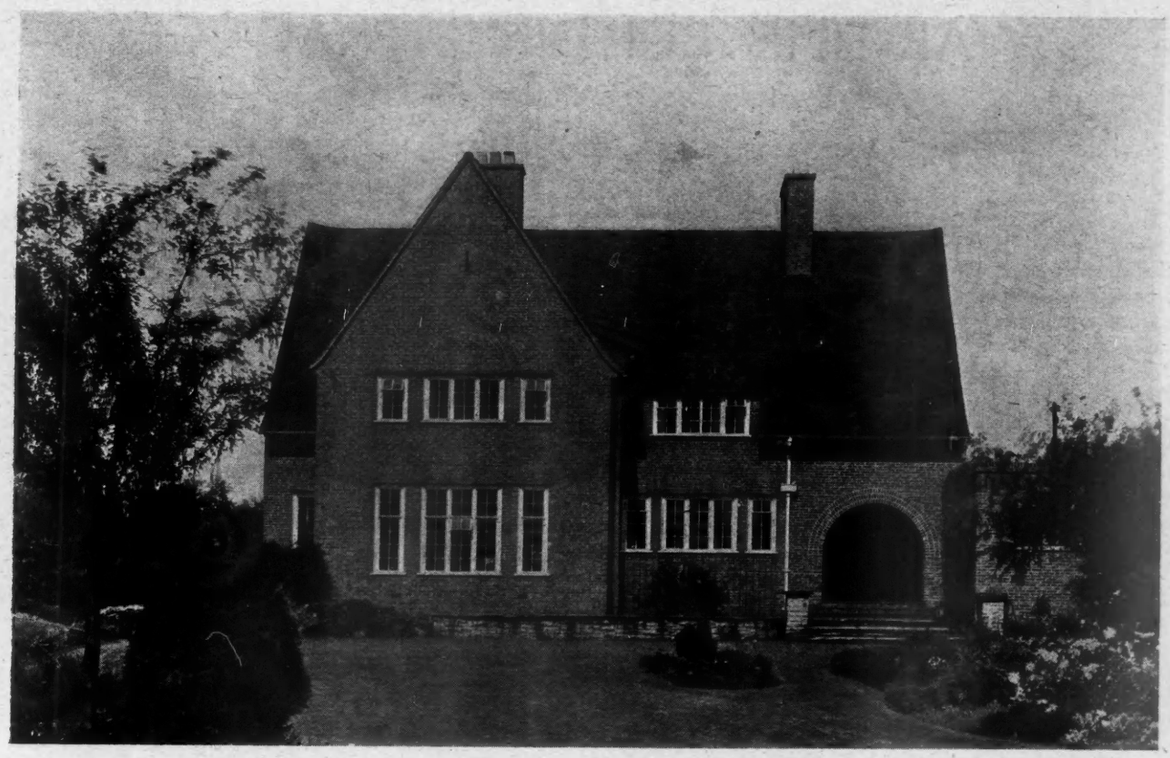
The whole building is centrally heated, and there is a hot-water supply to all showers and lavatories and canteens. There are electric clocks in the main rooms, that in the gymnasium being fitted with armour-plate glass. In connection with the showers the architects have designed these so that they can be used as foot-baths also.

The whole building has been finished with a view to reducing the cost of upkeep to a minimum. The whole of the internal walls being of fair-faced brickwork, this eliminates the use of plaster with the exception of the ceilings. The ground floor has wood-block floors, those to the first-floor being of elm strip. All roofs are flat and are finished in asphalt laid on insulating boards.

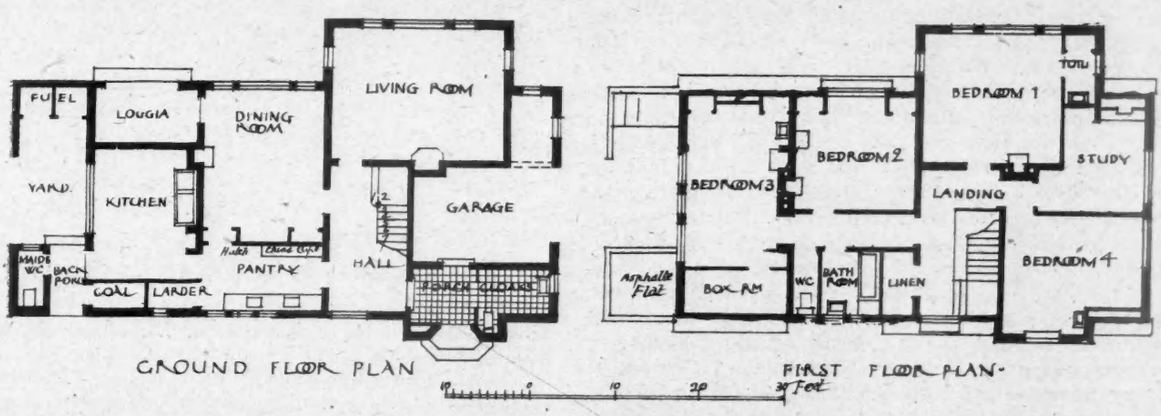
Externally the main elevation is of brick in rustic facings, where an interesting use has been made of special bricks. Over the main entrance is an overhanging canopy with a moulded lead fascia; there is a continuous moulded concrete lintol over the windows. The St. Andrew's bond of brickwork has been used in order to obtain the interesting diagonal effect of the joints.

The architects are Messrs. Kenneth Dalgliesh and Roger K. Pullen, F. and A.R.I.B.A., A.A.Dip. The general contractor was Mr. Ralph West, of Northampton, and sub-contractors were: Asphalt roofs and shower-bath tiles, Highways Construction Co.; wood-block floors, Hollis Bros. and Co., Ltd.; heating and hot water, Seaton and Peat, Northampton; ironmongery, N. F. Ramsay and Co.; metal windows, doors and roof lights, Crittall Manufacturing Co.; concrete floors and staircases, Caxton Floors, Ltd.; steelwork, Somerville Barnard and Co., Ltd.; sanitary fittings, John Bolding and Cleavers, Northampton; gas services, the Northampton Gas Co.; electricity, the Northampton Electric Light Co.; canteen fitments, Kandya, Ltd.; electrical work, Goldstone, Ltd., Northampton; paint and distemper, Sissons Bros. and Co., Ltd.; flagstaff, C. Butterfield and Co.; stonework, White and Joyce, Northampton; lettering and name-plates, Daymonds, Ltd.; electric clocks, Garrard Clocks, Ltd.; gymnasium equipment, T. M. Gardiner, Ltd.; facing bricks, Eastwoods; stain, Stainax Co.; and acoustic tiles, roof and floor insulation, Thermacoust Products, Ltd., and Honeywill and Stein, Ltd.

THE "ROADMENDER" BOYS' AND GIRLS' CLUBS, NORTHAMPTON.



THE GARDEN FRONT



THE ENTRANCE FRONT.

THIS attractive house was recently completed for Mr. J. A. K. Ferns at Wilmslow, Cheshire. It has been built by Messrs. L. Brown and Sons, Ltd., of Wilmslow, the following sub-contractors assisting: F. Brown and Son, Ltd., slating and tiling; Ravenhead, facing bricks; Conways, Ltd., wall and floor tiling; Laidlow and Thomson, Ltd., ironmongery; and Henry Hope and Sons, Ltd., metal windows.

"SEVEN GABLES": A HOUSE AT WILMSLOW.

MR. J. HUBERT WORTHINGTON, F. R. I. B. A. (MESSRS. THOMAS WORTHINGTON AND SONS), ARCHITECT.

WAR-TIME BUILDING PRACTICE

By R. Cotterell Butler, A.R.I.B.A.

36.—SYNTHETICS FOR THE BUILDING INDUSTRY

PLASTICS.—I

THE development of the Plastics Industry during the past twenty years has been such that although, apart from certain electrical applications, plastics were little used in the war of 1914-1918, to-day they may be said to play a key part in both the armament and aircraft industries.

In the electrical industry, plastics have—ever since their first commercial development—been recognised as important, quite apart from any question of their value as substitutes. In this field they have for some considerable time been closely connected with building practice. For the past five years the application of plastics to building in a more general way than that connected with electrical installations has been rapidly developing.

Of all synthetic materials the plastics group is perhaps the most versatile; it was in fact so simple to copy the properties of the materials in plastics that for a number of years and even to-day there has persisted an erroneous tendency to think of plastic products essentially as substitutes.

THE INDUSTRY AND THE WAR

Why, then, if plastics are so suitable for use as substitutes for other materials, and already at such a stage of development that they are an important section of industry, has their application in building practice been so limited?

In the first place, the raw materials from which plastics are made are not cheap—compared, that is, with the common metals and earth derivatives such as clay and stone aggregates. This is not to say that raw materials for making plastics are rare, or their supply is exhaustible more than those of other elements of the Earth's crust. Two of the most important binders for plastic manufacture, phenol-formaldehyde and urea-formaldehyde, are derived from coal and wood in the case of the phenolic resinoid, and from the synthesis of four gases—carbon dioxide and monoxide, hydrogen and ammonia(*a*)—in the case of urea resinoid.

However, owing to the fact that somewhat complex machinery is necessary both for the manufacture of the plastic material and for its fabrication, and that the industry is comparatively in its infancy, the cost of plastics is at the moment very high in comparison with many other building materials.

Up to the moment, the war has not stimulated the development of plastics for building, because the aircraft, armament and general electrical industries have absorbed practically all the war-time expansion of production. Neither does it seem possible that subsequently any considerable development in plastics for building will be stimulated by the war. What is very certain, however, is that after the war, probably immediately after, plastics (among other synthetics) will become of the greatest possible interest to constructors. The use of synthetic materials is at present in its very infancy, but it seems highly probable that their application to building will have as important an effect on practice as had the developments of brick and concrete.

THE RESINOIDS

One of the most important groups of plastics—the synthetic resins or resinoids, as they are generally termed—is no more plastic than is mass concrete, and in this respect the term plastics is something of a misnomer. To be quite accurate, plastics should be materials which may be softened, hardened (by the action of heat or otherwise) and softened again, and so on indefinitely.

Now both clay and cement-mortar are, at a certain stage in their manufacture, thoroughly plastic, but having respectively been baked or allowed to set, they are not in practice capable of being replasticised. This applies to many so-called plastics, and it is essential when considering the application of a plastic, particularly with regard to questions of re-use and scrap value, to be quite sure whether the material under discussion is really a plastic in the complete sense of the word.

The reason for the misuse of the term is found in the fact that, in the early days of the industry, the majority of materials in general use for moulding purposes were true plastics, and, since the new resinoids were in most cases used for similar purposes, they were included in the same category. As a general means of determining whether a plastic is truly a plastic or not, it need only be remembered that plastics may be divided into two groups, derived from the nature of the manufacturing process employed:

(*a*) *Thermosetting* plastics.—These materials are rendered plastic by the application of heat, but the temperature is allowed to continue, and is in some instances raised until the plastic has ceased to be plastic, and will no longer soften under the action of further heat (*b*). The material is then in a state analogous to baked clay or hardened cement.

(*b*) *Thermoplastic* plastics.—These materials are softened by the action of heat, moulded to the required shape, and as they reach normal temperature become hard again. They may in almost all instances be replasticised by heating, and the process repeated indefinitely. These are, therefore, truly plastic materials.

THE GROWTH OF THE PLASTICS INDUSTRY

A detailed historical survey of the growth of the plastics industry is out of the question here. Volumes have been and might be written on the technology of plastics; certainly one fair-sized volume could be written even confining one's attention to those aspects which should be of practical interest to builders and architects. In the limited space available it is only possible to produce what may be said to be an introduction to plastics. Even so, some brief reference to the historic background to the industry is essential.

Plastics, like other synthetic building products, consist essentially of a material known as a filler, bonded together by means of a glue-like material known as the binder, the combination suitably treated becoming the synthesised product. The analogy which exists between plastics and concrete was referred to in last week's article, but, taking the case of a common synthetic resin plastic, the analogy may be clearly re-stated as follows:

PRODUCT.	BINDER.	FILLER.	AGENT/S.	PROCESS.
PLASTIC	Resinoid	Wood-flour	Heat and pressure	Moulding
CONCRETE	Portland cement	Stone aggregate	Hydration	Casting

The early plastics were combinations of various fillers bonded together with such materials as bitumen, Gilsonite, and even coal-tar. Materials such as asbestos, cotton

(*a*) The synthesis of the four gases refers to the production of carbamide $CO(NH_2)_2$ *only*. The preparation of the complete urea-formaldehyde resinoid involves the use of formalin—an aqueous solution of formaldehyde—HCHO, and therefore in addition to the synthesis of $CO(NH_2)_2$, combination with a product obtained from the destructive distillation of wood is required.

(*b*) Resinoids under continued heating undergo polymerisation, this chemical change rendering the resinoid both infusible and generally insoluble in previous solvents. Resinoids before polymerisation are usually referred to as being in the "A" stage, after polymerisation they are said to be in the "B" stage.

flocks, wood fibres, and inorganics like slate-dust were used as fillers. One of the common early plastics, and one which has recently been redeveloped, is shellac plastic. Shellac is a natural resin of somewhat complex composition (*c*), and it may be used to bond together a number of interesting materials such as asbestos, mica, wood-flour, etc. These early plastics were used, and many continue to be used, for a variety of purposes, including electrical and radio equipment, and such simple mouldings as beer and hot-water bottle stoppers.

Supplies of natural resins are by no means unlimited, neither, since their compositions are inclined to vary, are they ideal for highly developed production. In 1872 records are found of an artificially produced resin, made from phenol. Subsequent development took place, and in 1905 a commercial method of manufacturing phenolic resins was patented. Then a large number of patents for the manufacture of phenolic resins were taken out by a Dr. Lea Baekeland, and to this gentleman most of the credit for the discovery of synthetic resin plastics is given. From this time the development of synthetic resins has continued steadily, if at first rather slowly.

Another early plastic, discovered as far back as the middle of the nineteenth century, and one which has continued to be developed ever since, is cellulose nitrate or celluloid. This material (which is thermoplastic) is not prepared by the admixture of a filler with a binder, and is one of those referred to in the footnote to the summary published last week. The material cellulose nitrate, formed by the action of nitric acid upon cellulose in the presence of sulphuric acid, is mixed with a plasticiser (*d*), and after colouring and compressing is dried by curing to remove any further volatile matter. The properties of this material are too generally well known to need detailed reference, except to remark upon its serious disadvantage of inflammability. Produced commercially somewhat later, a similar material, cellulose acetate, having the advantage of being non-inflammable, has recently developed very rapidly. Referred to in a later part of this article, cellulose acetate may well play a very important part in the future of the building industry.

Many further thermoplastic and thermosetting plastics, having properties which are likely to make them of interest to the builder and architect, have been developed commercially since the last war. Reference to the more common ones will be found below, but many of the most interesting are not likely to be of more than academic interest to constructors generally for some years to come.

MANUFACTURE

A. THERMOSETTING PLASTICS. Successive stages in the manufacture of a resinoid plastic may be tabulated as indicated in the accompanying diagram. One of the most common thermosetting resinoids, phenol-formaldehyde, is taken to illustrate the processes. Manufactured under the trade name of "Bakelite," this resin has been so widely developed that the name Bakelite has been very frequently used to describe thermosetting plastics in general. This is of course quite incorrect. Similarly the description "made from milk" has also been misapplied (*e*).

The first stage in the manufacture of the plastic is the preparation of the resinoid. In this instance, it consists first in the preparation of phenol by the destructive distillation of coal and of formaldehyde by a similar treatment of wood. The phenol and the formaldehyde are then combined, the reaction being hastened by the addition of a catalyst or agent. The result of this reaction is an artificial resin or resinoid, and after purification and dehydration it is ready for combination with a filler to form a moulding powder.

(*c*) Shellac is an insect secretion, obtained from the insect *laccifer lacca Kerr*. It would appear to consist of a number of different organic materials in solid solution.
(*d*) Typical plasticiser—camphor.
(*e*) Such a description as "made from milk" would, of course, refer to the casein group of materials.

The resinoid is combined with the filler, and in this instance we will assume it is wood-flour, manufactured free from natural resins, and of a suitable degree of fineness. The resinoid and the filler are combined mechanically by mixing, and at this stage pigments or dyes are added together with a lubricant (*f*). The resulting material is then ground and is in the form ready for moulding.

MOULDING.—In referring to the behaviour of thermo-setting resinoids above, it was pointed out that the resin becomes plastic under the action of heat, enabling it to be moulded to the required form, but that with continued heat-treatment it ceases to be plastic and becomes hard and inert. Without going into detail, it will be readily understood that the time-cycle of production must carefully allow for this, in order that the product may not harden before it has taken its proper shape. Temperature, pressure, composition of resinoid, and nature of the filler all contribute to the time cycle, as does the sectional thickness of the product being moulded, and all require very careful control to produce a satisfactory product.

The moulding process is carried out in large hydraulically operated thermostatically controlled presses, which in some cases are entirely automatic. The material is formed by the actions of a male and female die, and complex sections including undercuts may be produced.

EXTRUSION.—In addition to moulding, thermo-setting resins of certain types may be fabricated by what is known as an extrusion process. The moulding material is passed through a number of heated dies, and as it passes from the plastic stage to its finally inert form, it may be extruded in continuous length. The value of this process for the production of sections of importance in the building industry may be clearly seen.

LAMINATION.—The building-up of multi-ply sheets of plastic material of very considerable tensile and compressive strength is carried out by means of presses, many of which have now been made in very large sizes. The laminated material is prepared by forcing the resinoid into paper or other fabric under great pressure, and the hardening is

(*f*) Suitable lubricant—aluminium stearate.

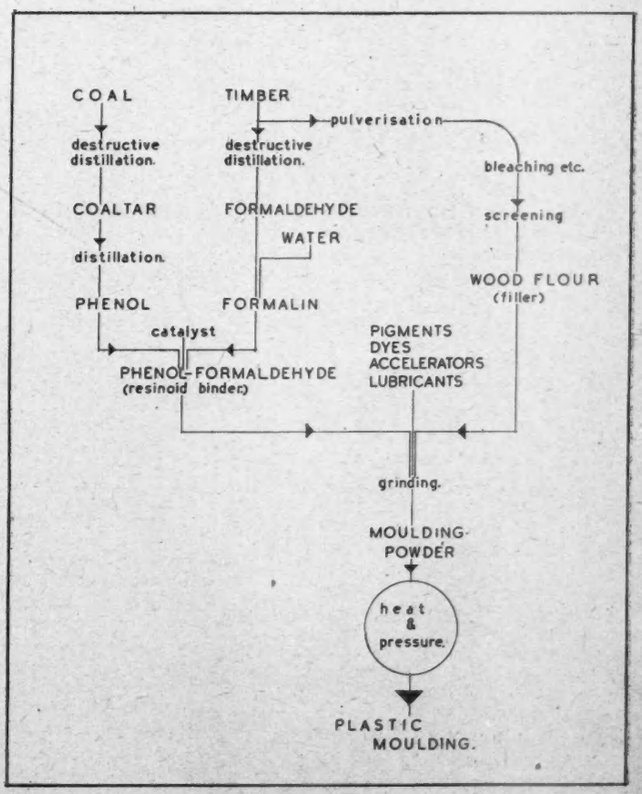


Diagram showing successive stages in manufacture of a Resinoid Plastic.

carried out during the final process in which the sheets are heat-treated while being pressed together.

B. THERMOPLASTIC PLASTICS. — These plastic materials are either produced by a similar process to that described above, the binding material being mechanically combined with the filler, or as is the case with celluloid, the plastic material only requires the addition of a plasticiser. In this latter instance the binder and filler may be said to be one and the same.

Products in this material are either formed from sheets or blocks, being pressed into shape by apparatus similar to that used for thermosetting plastics. Alternatively, since it may be kept plastic for long periods without the danger of its hardening (*g*), it is maintained in the semi-liquid state, and injected into moulds through a fine nozzle under high pressure. The technique is similar to pressure die-casting employed for zinc and aluminium-base metallic alloys.

Since thermo-plastic resins do not harden under continued heat of a suitable range for moulding, the moulded products must be wholly or at least considerably cooled before they are removed from the moulds, otherwise they would deform. To save the time which would be lost through the mould being out of use while cooling naturally, specially designed moulds which may be cooled rapidly by means of water circulations or air currents are employed, while in the case of injection moulding, the mould may be maintained at a comparatively low temperature.

Thermoplastic materials lend themselves very well to certain forms of extrusion, the material being forced through first hot then cooler dies until fully shaped.

C. CAST PLASTICS. — A further technique of operation consists of casting resinoids and other plastics by pouring the liquefied materials into moulds. In this instance the moulds are of simple design costing very much less than the comparatively expensive dies used for moulding or extrusion. They are produced in large numbers and the plastic material is set aside and allowed to cool naturally. The moulds being simple and cheap, it is economically possible to have a number of moulds out of action for longer periods than would otherwise be possible.

Cast resins have certain properties which arise directly from the casting process, and this system is very frequently used where the plastic is subsequently to be machined.

In a later article it is hoped to classify the more common and useful plastics of interest to the building industry, to review their important physical and mechanical characteristics, and to discuss their present, and possible future applications.

(To be continued.)

(*g*) The thermoplastics do not undergo polymerisation as do the thermosetting resinoids.

CORRESPONDENCE

Books for Architect Prisoners of War.

To the Editor of *The Builder*.

Sir,—Architect prisoners of war urgently need books on architecture. The R.I.B.A. Library is co-operating with the Prisoners of War Department of the British Red Cross and St. John's War Organisation in the supply of books.

We have been told that Oflag VII C/H Camp, with 1,200 officer prisoners, has set up a university with 16 faculties, of which architecture is one. The profession in England can help these prisoners by providing them with their books. To a certain extent, some of their need can be supplied from surplus R.I.B.A. Library stock, but more is wanted, and we must call on the help of architects in this country to form a really good collection.

We have been asked specially for the following books, and will be glad if any members who have copies to give, will send them to Messrs. Blackwells, Broad Street, Oxford, labelling the parcel clearly "R.I.B.A. books for Prisoners of War," and writing at the same time to the R.I.B.A. Librarian giving a list:—

Banister Fletcher: History of Architecture.

Raymond Unwin: Town Planning in Practice.

Samuel Skrimshire: Land Surveying.

W. R. Jaggard and F. E. Drury: Architectural Building Construction. Three vols.

Francis Bond: Gothic Architecture in England.

G. T. Clarke: Mediæval Military Architecture in England.

J. H. Parker: An Introduction to the Study of Gothic Architecture.

W. R. Lethaby: Architecture.

Charles Oman: Castles.

Gifts should not be confined to the books on the above list, since works of every kind are wanted, including all those on the Lists of Books Recommended to Students Sitting for the R.I.B.A. Intermediate and Final Examinations and the Town Planning Diploma. These can be seen at the R.I.B.A. or obtained on request.

Edward Carter,
Librarian, R.I.B.A.

66, Portland Place, W.1.

"A New Capital City?"

To the Editor of *The Builder*.

Sir,—The contribution by Mr. Stephen Wilkinson is very interesting, but his last paragraph does not add any force to his argument. Many of us who have been interested in town planning have long thought that London should be distributed, and some of us in the days that are now lost have fought for that idea.

In my school days I was taught that industry was to be placed near to "raw materials" to get the best results. In my maturer age I find that most of my geography and economics, like so many other things learned in early life, have to go by the board. The concentration of industry in the environs of London is and has been a disgrace to the ruling powers of this country. It will be difficult to change this state of affairs, for both manual and mental labour have become a "vested interest." It would take too much of your space for me to dissect this question.

But is there any need for the establishment of a "new" capital? Could not the capital remain and industry be distributed. York and Winchester have never been in quite the same position as London. One might as well propose Kingston-on-Thames or Caerleon. We have not yet quite finished with the Continent, and London could still remain a distributing centre, effective and efficient with half of its present population, if it were not for the crazy idea of "being proud of being a citizen of the greatest city in the world."

In this senseless boast, statesmen and other prominent leaders have taken a lead, and should now take a lead in undoing the mischief. One of the chief problems is transport.

The "greatest city in the world," Sir, is the one where there is the greatest happiness and not one where misery lurks round almost every corner. Architects are too apt to think of a great city in terms of architecture whereas a "great city" is a question of the humanities.

K. Cochrane-Holroyd.

Ealing, W.5.

WAR-DAMAGED BUILDINGS AND RATING

The Minister of Health has had under consideration questions which have engaged the attention of rating authorities in regard to rates on premises rendered uninhabitable, temporarily or permanently, by enemy action. Rating authorities will be aware that the Minister has no jurisdiction which would enable him to determine authoritatively questions arising as to the legal liability for rates in such cases, but he thinks it desirable, in order to secure uniformity of procedure, to indicate to rating authorities the course which in his view might reasonably be adopted.

It appears to the Minister that the cases may usefully be classified under the following heads:—

(a) Premises completely demolished or so badly damaged as to render demolition necessary.

(b) Premises uninhabitable by reason of—(i) structural damage; (ii) destruction of essential services; or (iii) proximity of unexploded bombs.

(c) Premises slightly damaged.

As regards group (a), the premises in such a case would appear to be incapable of beneficial occupation, and rate-liability would therefore cease as from the date of destruction. Any consequent rebate on rates paid, or allowance in respect of rates due, should be made forthwith. In such cases the value of the hereditament as appearing in the valuation list will call for review, and the machinery of revision—by proposal or, in London, by provisional list—should be put in operation as soon as may be. Occupiers of the premises concerned in such cases can hardly be expected to initiate the procedure and the Minister would suggest that the rating authority itself should take the necessary steps.

As regards group (b) the Minister suggests that rating authorities might properly take the view that premises temporarily rendered uninhabitable for any of the reasons mentioned are not for the time being in beneficial occupation and that, for administrative purposes, the presence of furniture on the premises and other evidence of intention to return when circumstances permit could reasonably be regarded as immaterial. Individual cases should be dealt with on their merits, but it is suggested that where, by reason of temporary unfitness for habitation or restrictions on access and user, an occupier is deprived of the use of his premises for a period exceeding seven consecutive days the premises should be treated for the whole of

such period (including the first seven days) as "void" for rating purposes.

In considering whether the circumstances are such as to render the premises temporarily unusable, the rating authority should be guided by the advice of the responsible officers of the authority or, in the case (iii) above mentioned, the police.

Cases may well arise where, in default of other available accommodation, occupiers continue temporarily to use as essential shelter some part of their damaged premises. It is suggested that rating authorities might well regard many such cases as justifying the exercise of their discretion under Section 2 (4) of the Rating and Valuation Act, 1925 — or in London under the Remission of Rates (London) Act, 1940—as to the total or partial remission of rates. In the case of premises which have suffered only minor damage and where occupation continues, or is only temporarily interrupted pending the execution of "first-aid" repairs, there would appear prima facie to be no case for the granting of a "void" allowance or reduction of rates, unless unavoidable delay in executing the repairs results in interruption of occupation for more than seven consecutive days.

IN PARLIAMENT

Taxes on Evacuated Property.

SIR K. WOOD, the Chancellor of the Exchequer, in reply to MAJOR MILNER, said that except where the evacuation was for a short period, by reason of some purely temporary local risk, relief from income tax Schedule A would be given as from the date of evacuation in cases where an owner-occupier was required by the competent authority to evacuate his property more or less permanently. As regarded rates, it would appear that in such cases the occupier, being legally deprived of access to the premises, would not during that period be liable for rates.

Builders' Accounts.

MR. BELLENGER asked the Minister of Health what arrangements were being made for the supervision of builders' accounts in respect of work carried out on the orders of local authorities in connection with the repair of house property damaged by enemy air action.

MISS HORSBRUGH said that full provision for the supervision of builders' accounts was included in the form of contract recommended to local authorities for use in connection with first-aid repairs. Permanent repairs were normally carried out by competitive tender, and the arrangements for supervision would be those usual in such cases.

Air-raid Damage.

SIR IRVING ALBERY asked the Minister of Health if he would instruct local authorities that temporary repairs to houses damaged in air-raids should include, as soon as possible, the provision of a reasonable amount of transparent material for the admission of light and also temporary repairs to ceilings where these had been damaged.

MR. MACDONALD said he had already drawn the attention of local authorities to the desirability of using a certain proportion of transparent or translucent material in making temporary repairs to windows, and he was shortly issuing a further circular dealing with the same matter in more detail, and with the steps which should be taken to deal with damaged ceilings.

SIR IRVING ALBERY asked the Minister of Health if he would take steps to insure that temporary repairs to houses damaged in air-raids should be put in hand forthwith by local authorities unless they were notified by the owner within 24 hours that he proposed immediately to undertake these repairs on his own account.

SIR ROBERT GOWER asked the Minister of Health whether, as many borough councils did not seem able with sufficient rapidity to undertake the task of wind- and weather-proofing, especially in the case of better-class property, with the result that rain destroyed the value of an assessor's estimate and compelled reassessment, he would impress on all local authorities the need for attending to this matter on a better-organised scale and with greater celerity.

MR. MACDONALD said that local authorities were fully aware of the urgency of temporary repairs, and most of them were able to arrange for such repairs to be put in hand immediately after the ocurrence of damage without the delay which would often be caused by consulting the owner. In certain areas there had been delays owing to the magnitude of the problem and the calls upon labour, and the Minister of Labour and he were doing their best to assist the local authorities concerned.

Air-raid Shelters; Surveyors' Fees.

SIR HERBERT WILLIAMS asked the Minister of Health whether he was aware that persons who erected brick or concrete air-raid-precautions shelters in their gardens at their own expense were being charged a percentage fee on the cost by district surveyors under the London Building Acts; what services the district surveyors rendered for this fee; and whether he would take steps to waive such fees in respect of any air-raid-precautions shelter erected within the London area at private expense.

MISS HORSBRUGH said that the functions and duties of district surveyors in regard to the supervision of buildings and structures were laid down in the London Building Acts. The scale of fees chargeable was also laid down in the Acts, and the Minister had no power to waive them. She understood, however, that the London County Council had issued general directions to the district surveyors under which the fees in respect of small air-raid shelters were remitted.

OFFICIAL NOTIFICATION

Machinery in War-time.

The Board of Trade ask all owners and users of machinery to exercise the greatest care to preserve its life. In peace time new machinery put into use in Britain amounted to over £1,000,000 each year and its weight to about 1,000,000 tons—consisting mostly of steel.

In war time the amount of new machinery needed is even greater than in peace time. We are engaged in a war in which engineering plays a vital part. But at the very time when we want more machinery it is much more difficult to obtain. Firms and men who carefully and regularly attend to the overhaul and proper treatment of machinery and plant are doing a real service. Contractors and others using road-making and mechanical handling plant can render special service. Their kind of machinery is particularly liable to strain and heavy wear, so extra care of it is exceptionally important.

A.R.P. SCHEMES

LONDON.

BANSTEAD.—U.D.C. propose a 50-person shelter.—Council accepted tender of Norman Wright (Builders), Ltd., for shelters.—Shelter to be erected in Sandersfield-rd.

CROYDON.—C.B. to consider tenders for shelter accommodation at various hospitals. Estimated cost, £1,216 3s., and sleeping bunks at £3 16s. 9d. per unit.

EPSOM AND EWELL.—T.C. placed contract with John Gordon (Surbiton), Ltd., Ewell-rd., Surbiton, at £1,477 6s., for concreting of approximately 500 Anderson shelters. Plans by Norman Auty, A.M.Inst.C.E., B.E.

FINSBURY.—B.C. recommend acceptance of tender of E. Pollard and Co., Ltd., for waterproofing shelters, and also expenditure totalling £27,720 on construction of a shelter at Spa Green.

LAMBETH.—B.C. approved shelter accommodation on Duchy of Cornwall estate and at Albert Embankment.

RUISLIP-NORTHWOOD.—U.D.C. placed contract with Wood Surrounds, Ltd., of Ruislip, for tier bunks, at £2 4s. 7d. per bunk.—R. Ford, T. Downer and Bunting Construction Co., Ltd., accepted for 48-person shelters, at £102 each.—Estimates of Cement Waterproofers, Ltd., at £3 11s., for waterproofing standard 6-person shelter, and Grainger and Apthorp, Ltd., at £3 3s., for same, accepted.—Council approved 9 individual brick surface shelters, at £237; public surface shelter in Eastcote High-rd.; and public surface shelter in Clack-la., Ruislip, to accommodate 50 persons, at £135.

WANDSWORTH.—B.C. recommend following: Semi-sunk shelter, at £120; replacement by brickwork of sandbag protection at 3 first-aid posts, at £910; adaptation of basements for 3,095 persons, at £8,415, by J. Carmichael, W. J. Ryland, Snelling and Rayment, and Panton and Co.; supply of bunks by 10 contractors, at £11,485.

PROVINCIAL.

ALDRIDGE.—U.D.C. propose additional wardens' posts at Rushall, Aldridge, Pelsall and Streetly.

ASHBY-DE-LA-ZOUCH.—U.D.C. propose public shelters at Claridge-pl. Plans by G. E. Marlow, S.

ASHINGTON.—U.D.C. to erect by direct labour 30 communal shelters. Plans by B. Preston, S.

BACUP.—T.C. propose 48-person public shelters in Temple Court area and at Cutler Greens.

BAILDON.—U.D.C. to erect public shelter at Towngate.

BATLEY.—T.C. to erect 3 50-person shelters. Plans by T. Mossop, B.S.

BEDLINGTON.—U.D.C. to erect by direct labour 527 domestic shelters. Plans by W. Hall, S.

BLACKBURN.—E.C. to erect shelters at 15 elementary schools, etc. Plans by W. Pickstone, B.E.

BRADFORD.—A.R.P. Emergency Committee to proceed with surface shelters in lieu of tunnel. Plans by W. Platt, City E.

BRIDLINGTON.—Tarran Industries, Ltd., Clayer-rd., Hull, secured contract for three wardens' posts, for T.C. Plans by A. Cunningham, B.E.

BROMSGROVE.—Two shelters for 12 and 8 beds at the Haley Green Isolation Hospital for the North Worcestershire Joint Hospital Board. Contract placed with J. Taylor and Sons, Cemetery-rd., Lye, Stourbridge, at £357 10s. Plans by H. E. Folkes, architect, 34, Hagley-rd., Stourbridge.

BROMSGROVE. — For waterproofing Anderson shelters for U.D.C. contract placed with L. and F. Baker, Ltd., 111, New-st., Birmingham.

CAERNARVON.—T.C. to seek approval for domestic shelters, at £22,000.—Plans prepared for public shelters for 1,200 persons on nine sites.

CHESHIRE.—C.C. seeking sanction of Home Office for bunks in public shelters, at £35.000.

CHESTER-LE-STREET.—R.D.C. to concrete-line Anderson shelters to prevent flooding, by direct labour.

CLAYTON-LE-MOORS.—U.D.C. to erect domestic shelters for an additional 2,000 persons. Plans by J. W. Broad, S.

CONSETT.—For concrete lining of shelters for the U.D.C., contract placed with John Tully and Son, Consett.

COVENTRY. — T.C. approved: Decon-

tamination laundry for T.C.; shelter for the Lockhurst Lane (Foleshill) Industrial Co-operative Society, Ltd.; shelter, St. Joseph's Convent, for T.C.

FELLING-ON-TYNE.—Contract placed with T. Davidson, Felling-on-Tyne, for 15 domestic shelters for U.D.C.

GARFORTH.—U.D.C. placed contracts with R. K. Poskitt, Ltd., of Beal, and L. Garbutt, of Aberford, for 53 domestic surface shelters. Plans by B. J. Cornelius, E. and S. Tenders on page 541.

LICHFIELD.—R.D.C. to erect domestic communal shelters. Plans by J. G. Rimand, S.

LINDSEY.—E.C. to erect school shelters at Gt. Coates, Healing, Stallingborough and Humberston. Plans by P. W. Birkett (A.), County Architect, Newland, Lincoln. Cost, £1,110.

LYTHAM ST. ANNES.—T.C. propose number of communal public shelters. Plans by G. W. Lawson, B.E.

MANCHESTER.—R. Carlyle and Co., Ltd., Elsinore-rd., Old Trafford, Manchester, 16, contractors for fire station and A.R.P. quarters to works for Geigy Colour Co., Ltd., St. Mary Parsonage. Plans by B. Waterhouse, architect, 134, Deansgate.

MIDDLESBROUGH.—E.C. placed contract with J. H. Proudlock, 14, Grove-rd., North Ormesby, Middlesbrough, at £137, for shelter at children's homes. Plans by F. Mellor, A.R.I.B.A., Architect to E.C.

MORECAMBE AND HEYSHAM.—Lancashire C.C. propose decontamination laundry at White Lund. Plans by S. Wilkinson, County Architect, Preston.

MORLEY.—T.C. to erect additional domestic and public shelters for 2,000 persons.

MORPETH.—Regional Officer approved shelters for 145 persons and for 300 persons for T.C.—R.D.C. received consent to adapt houses as shelters.

OAKHAM.—U.D.C. propose domestic and public shelters. Plans by H. Tabberer, S.

RICHMOND (YORKS).—T.C. propose 23 shelters, each capable of accommodating 50 people. Plans by H. D. Stanworth, B.E.

RYTON-ON-TYNE.—U.D.C. received consent to build another 26 domestic shelters.

SALFORD.—T.C. given authority, subject to approval of Senior Regional Officer, for further 500 individual domestic surface shelters, at £10,000.

STOCKTON-ON-TEES.—B.E. to report on provision of heating units at 17 A.F.S. action stations.

STOCKTON-ON-TEES. — T.C. preparing scheme for communal shelters for 1,000 more people. Plans by R. Knelles, B.E.

STOKESLEY.—R.D.C. to build further shelters in nine districts.

TENDRING.—R.D.C. placed contract with Canter and Sons, Clacton-on-Sea, at £2,950, for communal shelters. Plans by S. E. Carroll, S. Tenders on page 542.

THIRSK.—R.D.C. seeking sanction for communal shelters, at 8 districts.

WOMBWELL. — U.D.C. instructed W. Quest, S., to prepare plans for bomb-proof public shelter.

SCOTLAND.

ABERDEENSHIRE. — C.C. approved shelters for schools from plans by their own architects, at £7,000.

DUNDEE.—Corporation Emergency Committee of the T.C. unanimously agreed to forward proposals to Ministry of Home Security for big range of shelter improvements. Cost over £100,000.

EDINBURGH. — Corporation intend to construct from plans by City Engineer and Architect deep shelters, with sleeping accommodation.

GLASGOW.—Plans prepared for shelters by J. McNab, architect, 129, Bath-st., for a public school.—T. Somers, Office of Public Works, architect for shelters at playing fields.—Plans prepared for shelters at showground by T. Somers.

GREENOCK.—Corporation placed the contracts for shelters as follows: South Craigieknowes housing scheme, J. and R. Kirk, Ltd., Greenock, £580; Strong Farm housing scheme, Grant and Burns, Ltd., Glasgow, £7,628 1s. 5d.; Tobago-st. and Eash Shaw-pl., J. Aitkenhead and Co., Greenock, £3,164; Roxburgh-st., J. and R. Kirk, Ltd.; Bow Farm housing scheme, D. McEwing and Co., Ltd., Greenock. Plans by D. Henderson, architect, Municipal-bldgs.

EMERGENCY INQUIRY BUREAU

Questions from readers arising out of War-time difficulties and recent Emergency legislation will be answered by a special staff of contributors. Questions, which should be addressed to the Editor, should be accompanied by a stamped addressed envelope.

Damp Course in Blast Wall.

SIR,—*I should be glad to have information on the following points:—*

(1) *The name of an acknowledged authority on brickwork.*

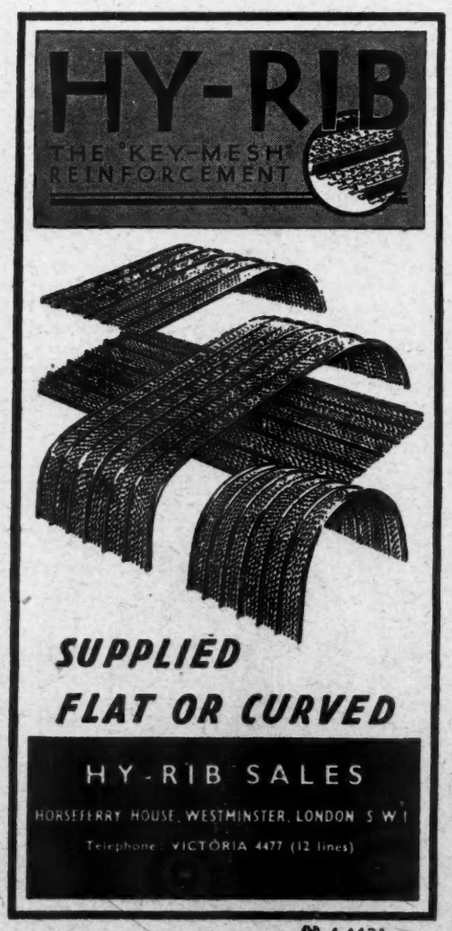
(2) *Would a dampcourse of slate, broken joint, bring about any sort of pivoting, slipping or sliding movement in a blast wall? Mortar: lime, sand, and a little cement.*

(3) *Do you think that if sharp sand and cement were used it would be a great improvement and prevent any movement?*

(1) Mr. L. W. Burridge, of the Clay Products Technical Bureau.

(2) If properly laid, a d.p.c. does not provide a plane of weakness. Regarding a slate d.p.c., it must be borne in mind that a blast wall is liable to shocks which might cause disintegration of the slate, and the use of engineering bricks with an absorption not greater than 3 per cent. is preferred. At least two courses of such bricks should be used and firmly and integrally bonded to the rest of the brickwork. With regard to mortar, the mix mentioned would have too high a lime content to render a d.p.c. effective.

(3) A straight cement and sharp sand mortar would effect great improvement in efficiency as a d.p.c., but would not have appreciable effect upon prevention of movement. A modicum of lime introduced solely to ensure optimum bond between the mortar and the brick will not detract in the least from the mechanical strength of the brickwork, and a mix, parts by volume of one cement, one-tenth slaked lime, two to three sharp clean sand, is suggested.



4-443A

CURRENT AND PROPOSED BUILDING WORK*

Athlone.—Management of Woollen Mills, Ltd., announced intention of building new mills.

Blackpool.—T.C. approved: Club headquarters. H. A. Thomas (A.), architect, 36, Dale-st., Liverpool.

Boston.—(**Holland Div.**).—C.C. (Lincs) propose conversion of casual wards into maternity hospital for 12 beds. Plans by W. M. Smith, County Architect.

Bradford.—T.C. approved: extensions to works, Thornbury, Crofts (Engineers), Ltd.

Bredbury.—Cheshire E.C. to complete Harrytown school. Plans by F. Anstead Browne (F.), County Architect, Chester.

Bridgnorth.—Council to ask for authority to build 10 or 20 houses.

Chesterfield.—Chesterfield and Bolsover Water Board propose augmenting water supply, at £22,500.

Colne. — Plans passed: pattern store for Burrows, Green and Co.

Coventry.—T.C. approved: alterations and additions to hotel for H. M. Hobson components, Ltd.; offices, Grand Union Canal and Carrying Co., Ltd.; 896 houses, Corporation; alterations to police headquarters, Corporation.

Darlaston.—U.D.C. propose repairs to 12 houses, at £300. N. H. Hughes, S.

Donnington.—Shropshire Standing Joint Committee propose police buildings, at £2,000. Plans by J. Guy Chant (F.), County Architect, 5, Belmont, Shrewsbury.

Halesowen.—Garratt and Co., Ltd., Corngreaves, Cradley Heath, propose brickworks.

Jarrow.—T.C. applying to M.H. for sanction to complete 38 houses. J. S. Weir, B.E.

Lancashire.—P.A.C. propose renewal of electric lighting installation at County Hospital and Institution, Ormskirk, at £3,500. E. Griffiths and Son, consulting engineers, The Temple, 24, Dale-st., Liverpool.

Lancashire.—C.C. approved plans for conversion of farm buildings, Rufford, into three cottages, at £595.

London.—L.C.C. recommended borrowing by Wandsworth B.C. of £1,714 for sewerage purposes within borough.

Macclesfield.—R.D.C. propose 8 houses. Plans by J. H. Walters (L.), architect, 19, Moody-st., Congleton.

Morpeth.—T.C. approved plan for extensions to Sanderson House, Bridge-st., for W. S. Sanderson.

Newbury.—U.D.C. approved: Alterations and additions to New Inn, Curridge, for H. and G. Simonds.

Northants.—C.C. propose recreation hall at Rushden sanatorium. Plans by G. H. Lewin (F.), County Architect, Northampton. Cost over £1,000.

Redditch.—U.D.C. prepared plans for 176 additional houses. Plans by L. O. Wilkes, S.

Richmond (Yorks.).—B.E. to prepare plans for building to house chlorination plant.

Shipley.—U.D.C. approved: canteen and rest room for Scott's Motors, Ltd. A. Sutherland, architect, 44, Keighley-rd.

Shipley.—U.D.C. approved: extensions to works, Lee and Crabtree, Ltd.

Stockton-on-Tees.—G. P. Stainsby, 25, High-st., prepared plans for conversion of store into canteen for F. Hills and Co.

Stourport.—Management Committee of Lucy Baldwin Maternity Hospital are to adapt property as maternity annexe, at £1,000.

Wakefield.—T.C. propose workshops to Technical College. Plans by S. G. Wardley, City Architect.

Wath.—R.D.C. propose conversion of village hall for mortuary purposes.

West Hartlepool.—Central Marine Engine Works to build lavatory accommodation.—Hartlepools Co-op. Society to build shelter.

Worcester.—Severn Catchment Board proposes improvement of channel of River Avon between Rugby and Little Lawford Mill.

* See also List of Contracts Open.

** **In these lists every care is taken to ensure that information given is accurate and up to date, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced.**

CONTRACTS OPEN

For some contracts still open, but not included in this list, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender, that a fair wages clause shall be observed, that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender, unless stated to the contrary. The dates at the head of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained. Abbreviations: (A.) for A.R.I.B.A.; B. of E. for Board of Education; B.C. for Borough Council; B.E. for Borough Engineer; B.S. for Borough Surveyor; C. for Clerk; C.B. for County Borough; C.C. for County Council; C.E. for County Engineer; C.S. for County Surveyor; D.S. for District Surveyor; E. for Engineer; E.C. for Education Committee; (F.) for F.R.I.B.A.; (L.) for L.R.I.B.A.; M.W.B. for Metropolitan Water Board; M.H. for Ministry of Health; M.T. for Ministry of Transport; P.C. for Parish Council; R.D.C. for Rural District Council; S. for Surveyor T.C. for Town Clerk and Town Council; and U.D.C. for Urban District Council.

BUILDING.

NOVEMBER 29.

Wrexham T.C.—Extensions to public abattoir. B.E., 1, Grosvenor-rd.

DECEMBER 2.

Brentwood U.D.C.—Approx. 450 6-person surface air raid shelters. D. A. Dallas, E. and S., Ingrave-rd. Dep. £2 2s.

Lisburn U.D.C.—Building of brick and concrete storage accommodation for repair and rescue and A.F.S. equipment, and building of two corrugated asbestos-sheeted sheds for storage, etc. Town S.

Norfolk C.C.—Conversion of two basements into shelters at Harleston. County Architect, 25, Thorpe-rd., Norwich.

Stroud R.D.C.—Five public shelters. R. Bird, Council-chams.

DECEMBER 3.

Aldershot T.C.—Demolition of chimney stack in Council's depot. J. Neave, B.S.

DECEMBER 4.

Leeds T.C.—Brick linings to entrance ramps to trench shelters in various parks, etc. W. S. Cameron, City E.

Marshland R.D.C.—Demolition of 2 houses. J. W. Crouch, architect, 3, Post Office-la., Wisbech.

Shepton Mallet U.D.C.—6 communal domestic shelters, to accommodate in all 252 persons. S.

West Riding C.C.—Works at Middleton-in-Wharfedale sanatorium, near Ilkley. West Riding Architect, Wakefield.

DECEMBER 6.

Prestwich T.C.—Concrete lining of approx. 200 Anderson shelters. Handel Kay, B.E. and S. Dep. £1 1s.

DECEMBER 7.

Leatherhead U.D.C.—Public surface shelters for 1,000 persons. J. L. Davies, E. and S. Dep. £1 1s.

North Riding C.C.—Conversion of premises at Eston Junction for use as first-aid post. H. G. Thornley, clerk, County Hall, Northallerton.

DECEMBER 9.

Richmond (Surrey).—Communal above-ground dormitory shelters in brickwork and concrete, to provide sleeping accommodation for 528 persons. B.E., Hotham House. Heron-ct.

DECEMBER 11.

Belper U.D.C.—3 small brick buildings, concrete contact chambers and appurtenant pipe work and installation of special dosing apparatus in connection with chlorination of water supplies. G. and F. W. Hodson, consulting engineers. Bank-chambs., Loughborough, or W. H. Wheeldon, S. Dep. £2 2s.

Cumberland C.C.—Work in connection with proposed improvements to Blennerhasset council school. J. H. Haughan (A.), County Architect, 4, Alfred-st. North, Carlisle. Dep. £1.

Ealing T.C.—Protective works at Perivale maternity hospital and Clayponds emergency hospital. C. W. Seddon, B.E. Dep. £1 1s.

DECEMBER 12.

North Cotswold R.D.C.—Domestic air raid shelters and other works in Moreton-in-Marsh. J. E. Busfield, S.

DECEMBER 20.

Richmond (Yorks) R.D.C.—Public air raid shelters. S., 14a, Queen's-rd.

DECEMBER 21.

***Stafford T.C.**—68 houses. W. Plant, B.E. Dep. £2 2s.

NO DATE.

Deal T.C.—Brick and concrete domestic surface and communal shelters. G. A. M. Gentry, B.E. and S.

Wednesbury T.C.—Garages at casualty service depot. A. Booth, Borough Architect.

PAINTING, ELECTRIC LIGHTING, HEATING, &c.

NOVEMBER 29.

North Riding E.C.—Repairs and reconstruction works at Junior council school, Grangetown, Eston. F. Barraclough, Sec., Education Offices, County Hall, Northallerton.

DECEMBER 2.

Hemsworth R.D.C.—Installation of heating apparatus in connection with fire and ambulance station at Moorthorpe, and patent doors. S. Price, E. and S.

DECEMBER 4.

Lichfield R.D.C.—Repair of 13 houses in Chase-rd., Burntwood. Sanitary Inspector.

DECEMBER 5.

Scotland.—Maintenance works at Government buildings in Aberdeen, Edinburgh and Paisley for Ministry of Works and Buildings. Sec., 122, George-st., Edinburgh.

DECEMBER 9

Dun Laoghaire T.C.—Electric wiring of 168 artisans' dwellings at Monkstown Farm and 40 artisans' dwellings at Temple Hill, Blackrock. C. St. G. Lynch, Deputy B.S. Dep. £2.

DECEMBER 17.

Grangegorman Mental Hospital.—Centralised steam plant, including heating, hot-water, electrical and sundry services. Vincent Kelly (F.), 87, Merrion-sq. South, Dublin. Dep. £10 10s.

MATERIALS.

DECEMBER 5.

Belfast City and District Water Commissioners.—Iron pipe castings, etc. W. I. Quinn, Sec., Water Office.

FEDERATED EMPLOYERS'

Insurance Association Ltd.

(non-tariff)

Head Office:
8, King St., Manchester

London Office:
23, Lawrence Lane, Cheapside, London, E.C.2

All Classes of Insurance Transacted

(Except Life and Marine)

The Leading Office for

Contract Guarantee Bonds

East Riding C.C.—Gravel and sand. C.S., Beverley.

DECEMBER 6.

Tyrone C.C.—Timber, etc. B. G. L. Glasgow, C.S., Dungannon.

DECEMBER 7.

Bath T.C.—Bituminous tarmacadam and clean broken stone. City E.

DECEMBER 9.

Armagh C.C.—Road tar. C.S., Courthouse, Armagh.

DECEMBER 12.

South Africa.—Electric light fittings for new G.P.O. at Bloemfontein, for Public Works Dept. Chairman, Union Tender and Supplies Board, P.O. Box 371, Pretoria, South Africa. (Ref. T. 22426/40.)

DECEMBER 18.

Huddersfield C.B.—Cast-iron pipes from 2-in. internal dia. to 12-in. internal dia., etc. J. P. Beveridge, Waterworks Manager, 24, Ramsden-st.

ENGINEERING, IRON AND STEEL.

NOVEMBER 30.

Marlow Water Company.—Covered service reservoir. Messrs. Roffe and Raffety, engineers, 42, Salisbury-av., Cheam. Dep. £2 2s.

Sidmouth U.D.C.—Dismantling, removing and re-erection of a cast-iron water-storage tank. Gas E.

DECEMBER 7.

Isle of Ely C.C.—Demolition of existing brick arch culvert and construction of new 3-ft. concrete tube culvert and ragstone headwalls, situate in Long Drive, Murrow. C.S., March.

DECEMBER 16.

Nottingham T.C.—Repairs in No. 1 well and other underground work at pumping station. B. W. Davies, Engineer and General Manager, Water Dept., Castle Boulevard. Dep. £1 1s.

ROAD, SEWERAGE AND WATER WORKS.

DECEMBER 2.

Blackpool C.B.—Surface draining and formation of Lindale-gdns. B.E.

DECEMBER 3.

Bere Regis Burial Board.—Laying-out extension to existing burial ground and incidental works. V. C. Lock, Westport House, Wareham.

North-Eastern Housing Assn., Ltd.—Construction of roads and sewers to serve 56 houses at Marvport. L. J. Couves and Partners, chartered and registered architects. 2, Westfield-av., Gosforth, Newcastle-upon-Tyne, 3. Dep. £2 2s.

DECEMBER 4.

Luton T.C.—Surface-water sewer in Crescent Rise for length of approx. 320 yds. F. Oliver, B.E. and S.

DECEMBER 5.

Leeds T.C.—Kerbing, flagging and tar paving carriageways in Cliff Side-gdns. Highways Engineer, 155, Kirkstall-rd., Leeds, 4.

DECEMBER 6.

Lancaster T.C.—Making-up a number of streets. F. Hill, City E.

DECEMBER 16.

Colchester T.C.—Pipeline, comprising 2 203 lin. yds. 12-in. dia., 358 lin. yds. 10-in. dia. and 1,568 lin. yds. 9-in. dia. pipe. H. Collins, B.E., 3, Bank Passage. Dep. £2 2s.

Public Appointments.

DECEMBER 3.

***Tottenham T.C.**—Clerk of Works for A.R.P. schemes. B.E. and S.

DECEMBER 10.

***Chelsea B.C.**—Chief Engineering Assistant. J. A. Gough, B.E. and S.

NEW BUILDINGS IN LONDON

EALING.—ALTERATIONS.—Plans passed by T.C. for Mr. T. C. Parker for alterations to Willow House, Ealing Green. The builders are Messrs. Hanshaw of Acton, Ltd., Acton.

TWICKENHAM.—BUILDING.—Plans have been approved as follows: Shop extension, Hampton, Hall and Hall, Ltd.; alterations, St. James' Hall, Twickenham, Skates Bros.

RATES OF WAGES IN THE BUILDING TRADE

AS AND FROM 1st DECEMBER, 1940

[Every endeavour is made to ensure accuracy, but we cannot be responsible for errors]

	Crafts-men.	Lab-ourers.
Aberavon	1/9½	1/4¾
Aberdare	1/9½	1/4¾
Abergavenny	1/9½	1/4¾
Abingdon	1/8	1/3½
Accrington	1/9½	1/4¾
Aldeburgh	1/6	1/2
Aldershot	1/8	1/3½
Alfreton	1/9½	1/4¾
Alnwick	1/9	1/4½
Altrincham	1/9½	1/4¾
Amble	1/9	1/4½
Amersham	1/8	1/3½
Ammanford	1/9½	1/4¾
Andover	1/7½	1/3½
Ardingley	1/7½	1/3¾
Arundel	1/7½	1/3¾
Ascot	1/7½	1/3¾
Ashby-de-la-Zouch	1/9½	1/4¾
Ashford (Kent)	1/7½	1/3¾
Ashford (Middlesex)	1/9½	1/4¾
Ashington	1/9	1/4½
Ashtead	1/9½	1/4¾
Ashton-under-Lyme	1/9½	1/4¾
Aylesbury	1/7½	1/3¾
Aylsham	1/6½	1/2½
Bagshot	1/7½	1/3¾
Banbury	1/7½	1/3½
Barnsley	1/9½	1/4¾
Barnstaple	1/7½	1/3¾
Barrow-in-Furness	1/9½	1/4¾
Barry	1/9½	1/4¾
Basingstoke	1/7½	1/3¾
Bath	1/9	1/4¾
Batley	1/9½	1/4¾
Beaconsfield	1/8	1/3½
Beccles	1/6	1/2
Bedford	1/9	1/4¼
Berkhamsted	1/7½	1/3¾
Berwick	1/9	1/4½
Beverley	1/9½	1/4¾
Bexhill-on-Sea	1/8	1/3½
Bideford	1/7½	1/3½
Biggleswade	1/7½	1/3½
Billericay	1/7	1/2¾
Birchington	1/7½	1/3¾
Birkenhead	‡§1/11	¶
Birmingham	†1/9½	†1/4¾
Bishop Auckland	1/9½	1/4¾
Bishops Stortford	1/8½	1/4
Blackburn	1/9½	1/4¾
Blackpool	1/9½	1/4¾
Blyth	1/9½	1/4¾
Bognor Regis	1/7½	1/3¾
Bolton	1/9½	1/4¾
Bournemouth	1/8½	1/4
Bracknell	1/7½	1/3¼
Bradford	1/9½	1/4¾
Bradford-on-Avon	1/6½	1/2½
Braintree	1/7½	1/3½
Brentwood	1/9	1/4¼
Bridgwater	1/8	1/3½
Bridlington	1/9	1/4¼
Brighouse	1/9½	1/4¾
Brighton	1/8½	1/4
Bristol	1/9½	1/4¾
Broadstairs	1/7½	1/3¾
Bromsgrove	1/9	1/4¼
Buckley	1/9½	1/4¼
Bungay	1/5½	1/1¾
Burnham-on-Crouch	1/6	1/2
Burnley	1/9½	1/4¾
Burslem	1/9½	1/4¾
Burton-on-Trent	1/9½	1/4¾
Bury	1/9½	1/4¼
Bury St. Edmunds	1/7	1/2½
Buxton	1/9	1/4¼
Byfleet	1/8	1/3½
Cambridge	1/9½	1/4¼
Canterbury	1/7½	1/3½
Cardiff	1/9½	1/4¾
Carlisle	1/9½	1/4¾
Carnforth	1/9½	1/4¼
Castleford	1/9½	1/4¾
Caterham	1/9½	1/4¾
Chard	1/6½	1/2½
Chatham	1/8½	1/4
Chelmsford	1/9	1/4¼
Cheltenham	1/8½	1/4
Chepstow	1/9	1/4¼
Chertsey	1/8½	1/4
Chester	1/9½	1/4¾
Chesterfield	1/9½	1/4¾
Chichester	1/7½	1/3½
Chorley	1/9½	1/4¾
Cirencester	1/7	1/2½
Clacton	1/7½	1/3½
Cleveleys	1/9½	1/4¾
Clitheroe	1/9½	1/4¾
Cobham (Surrey)	1/8½	1/4
Colchester	1/9	1/4¼
Colwyn Bay	1/8½	1/4
Congleton	1/9	1/4¼
Coventry	1/9½	1/4¾
Cranbrook	1/7½	1/3¾
Cranleigh	1/7½	1/3¾
Crawley	1/7½	1/3½
Crewe	1/9	1/4¼
Cromer	1/6½	1/2½
Crowborough	1/7½	1/3¾
Cuckfield	1/7½	1/3¾
Darlington	1/9½	1/4¾
Darwen	1/9½	1/4¾
Daventry	1/8	1/3½
Deal	1/7½	1/3¾
Denbigh	1/8½	1/4
Derby	1/9½	1/4¾
Devizes	1/6½	1/2½
Dewsbury	1/9½	1/4¾
Didcot	1/7½	1/3¾
Diss	1/6	1/2
Doncaster	1/9½	1/4¾
Dorchester	1/7	1/2¾
Dorking	1/8	1/3½
Dover	1/7½	1/3¾
Dovercourt	1/7½	1/3¾
Driffield	1/8	1/3½
Droitwich	1/9	1/4¼
Dudley	1/9½	1/4¾
Dunstable	1/8	1/3½
Durham City	1/9½	1/4¾
Eastbourne	1/8½	1/4
E. Glam. (Mon.Val.)	1/9½	1/4¾
East Grinstead	1/7½	1/3¾
Edenbridge	1/7½	1/3¾
Ely	1/6½	1/2½
Epping	1/9½	1/4¾
Exeter	1/9	1/4¼
Exmouth	1/8	1/3½
Fakenham	1/6½	1/2½
Falmouth	1/8	1/3½
Fareham	1/8½	1/4
Faversham	1/7½	1/3¾
Felixstowe	1/8½	1/4
Filey	1/8	1/3½
Fleetwood	1/9½	1/4¾
Flint	1/9½	1/4¾
Folkestone	1/7½	1/3¾
Frinton-on-Sea	1/7½	1/3¾
Frome	1/6½	1/2½
Gainsborough	1/8½	1/4
Gateshead	1/9½	1/4¾
Gillingham (Kent)	1/8½	1/4
Glossop	1/9½	1/4¾
Gloucester	1/9	1/4¼
Godalming	1/7½	1/3½
Goole	1/9½	1/4¾
Gosport	1/9	1/4¼
Grantham	1/8½	1/4
Gravesend	1/9	1/4¼
Great Yarmouth	1/7½	1/3¾
Grimsby	1/9½	1/4¾
Guildford	1/7½	1/3¾
Guisborough	1/8	1/3½
Halifax	1/9½	1/4¾
Hanley	1/9½	1/4¾
Harpenden	1/8½	1/4
Harrogate	1/9½	1/4¾
Hartlepools	1/9½	1/4¾
Harwich	1/7½	1/3¾
Haslemere	1/7½	1/3¾
Hastings	1/7½	1/3¾
Hatfield	1/9	1/4¼
Haywards Heath	1/7½	1/3¾
Hednesford	1/9	1/4¼
Hemel Hempstead	1/8½	1/4
Henley-on-Thames	1/7½	1/3¾
Hereford	1/7½	1/3¾
Herne Bay	1/7½	1/3¾
Hertford	1/9	1/4¼
Heysham	1/9½	1/4¾
Hitchin	1/8½	1/4
Hoddesdon	1/9	1/4¼
Holt (Norfolk)	1/6	1/2
Horley	1/7½	1/3¾
Horsham	1/7½	1/3¾
Horwich	1/9½	1/4¾
Huddersfield	1/9½	1/4¾
Hull	1/9½	1/4¾
Hunstanton	1/6½	1/2½
Huntingdon	1/7	1/2¾
Ilfracombe	1/7½	1/3¾
Ingatestone	1/8	1/3½
Ipswich	1/9	1/4¼
Isle of Thanet	1/7½	1/3¾
Isle of Wight	1/7	1/2¾
Keighley	1/9½	1/4¾
Kenilworth	1/9½	1/4¾
Kettering	1/9½	1/4¾
Kidderminster	1/9	1/4¼
King's Lynn	1/7½	1/3¾
Kirkham	1/9½	1/4¾
Knowle	1/9	1/4¼
Lancaster	1/9½	1/4¾
Leamington	1/9½	1/4¾
Leatherhead	1/8½	1/4
Leeds	1/9½	1/4¾
Leicester	1/9½	1/4¾
Leighton Buzzard	1/6½	1/2½
Letchworth	1/8½	1/4
Lewes	1/7½	1/3¾
Lichfield	1/8½	1/4
Lincoln	1/9½	1/4¾
Littlehampton	1/7½	1/3¾
Liverpool	†§1/11	¶
Llandudno	1/8½	1/4
Llanelly	1/9½	1/4¾
London—		
12m. radius	*1/11	1/5¾
12-15 m. radius	*1/10½	1/5½
Long Eaton	1/9½	1/4¾
Longton	1/9½	1/4¾
Loughborough	1/9½	1/4¾
Louth	1/8	1/3½
Lowestoft	1/7½	1/3½
Luton	1/9	1/4¼
Macclesfield	1/9	1/4¼
Maidenhead	1/8½	1/4
Maidstone	1/8	1/3½
Malvern	1/8	1/3½
Manchester	1/9½	1/4¾
Manningtree	1/6½	1/2½
Mansfield	1/9½	1/4¾
March	1/6½	1/2½
Margate	1/7½	1/3¾
Market Harborough	1/8½	1/4
Matlock	1/8	1/3½
Melton Constable	1/6	1/2
Melton Mowbray	1/8½	1/4
Merthyr	1/9½	1/4¾
Middlesbrough	1/9½	1/4¾
Middleton	1/9½	1/4¾
Middlewich	1/9	1/4¼
Milford Haven	1/8	1/3½
Morecambe	1/9½	1/4¾
Morley	1/9½	1/4¾
Mundesley	1/6½	1/2½
Nantwich	1/9	1/4¼
Nelson	1/9½	1/4¾
Newark-on-Trent	1/9	1/4¼
Newbury	1/7½	1/3¾
Newcastle-on-Tyne	1/9½	1/4¾
Newcastle-u.-Lyme	1/9½	1/4¾
New Forest	1/7½	1/3¾
Newmarket	1/7½	1/3¾
Newport, Mon.	1/9½	1/4¾
Newport Pagnell	1/7½	1/3¾
Northampton	1/9½	1/4¾
Norwich	1/9½	1/4¾
Nottingham	1/9½	1/4¾
Nuneaton	1/9½	1/4¾
Oakham	1/8	1/3½
Oldham	1/9½	1/4¾
Ormskirk	1/9½	1/4¾
Oxford	1/9	1/4¼
Oxted	1/8	1/3½
Paignton	1/9	1/4¼
Peterborough	1/9	1/4¼
Plymouth	1/9½	1/4¾
Pontefract	1/9½	1/4¾
Pontypridd	1/9½	1/4¾
Port Talbot	1/9½	1/4¾
Portsmouth	1/9	1/4¼
Preston	1/9½	1/4¾
Pulborough	1/7½	1/3¾
Ramsgate	1/7½	1/3¾
Reading	1/9	1/4¼
Redditch	1/9	1/4¼
Redhill	1/8	1/3½
Ripon	1/8	1/3½
Rochdale	1/9½	1/4¾
Rochester	1/8½	1/4
Rugby	1/9½	1/4¾
St. Albans	1/9	1/4¼
St. Helens	1/9½	1/4¾
St. Neots	1/7	1/2¾
Saffron Walden	1/6½	1/2½
Salisbury City	1/7	1/2¾
Salisbury Plain	1/8½	1/4
Sawbridgeworth	1/8	1/3½
Saxmundham	1/6	1/2
Scarborough	1/9	1/4¼
Scunthorpe	1/9½	1/4¾
Selby	1/9½	1/4¾
Sevenoaks	1/8	1/3½
Sheerness	1/7½	1/3½
Sheffield	1/9½	1/4¾
Shipley	1/9½	1/4¾
Shoeburyness	1/9	1/4½
Shoreham	1/8½	1/4
Shrewsbury	1/9	1/4¼
Sittingbourne	1/7½	1/3¾
Skegness	1/8½	1/4
Sleaford	1/8	1/3½
Slough	1/8½	1/4
Southampton	1/9	1/4¼
Southend-on-Sea	1/9	1/4¼
Southport	1/9½	1/4¾
South Shields	1/9½	1/4¾
Spalding	1/7½	1/3¾
Stafford	1/9	1/4¼
Staines	1/8½	1/4
Stamford	1/8½	1/4
Stevenage	1/8½	1/4
Stockport	1/9½	1/4¾
Stockton-on-Tees	1/9½	1/4¾
Stoke-on-Trent	1/9½	1/4¾
Stourbridge	1/9½	1/4¾
Stourport	1/9	1/4¼
Stowmarket	1/6½	1/2½
Stratford-on-Avon	1/8½	1/4
Stroud	1/8½	1/4
Sunderland	1/9½	1/4¾
Sutton Coldfield	1/9½	1/4¾
Swaffham	1/6	1/2
Swanage	1/7½	1/3¾
Swansea	1/9½	1/4¾
Swindon	1/8	1/3½
Tamworth	1/9	1/4¼
Taunton	1/8	1/3½
Tenterden	1/7½	1/3¾
Thames Haven	1/9½	1/4¾
Thetford	1/7	1/2¾
Thorpe Bay	1/9	1/4¼
Todmorden	1/9¼	1/4¾
Tonbridge	1/8	1/3½
Torquay	1/9	1/4¼
Totnes	1/7½	1/3½
Trowbridge	1/6½	1/2½
Truro	1/7	1/2¾
Tunbridge Wells	1/8	1/3½
Uppingham	1/8	1/3½
Uttoxeter	1/8	1/3½
Wakefield	1/9½	1/4¾
Walsall	1/9½	1/4¾
Walsden	1/9½	1/4¾
Walton-on-Naze	1/7½	1/3¾
Ware	1/9	1/4¼
Warminster	1/6½	1/2½
Warrington	1/9½	1/4¾
Warwick	1/9½	1/4¾
Wellingborough	1/9	1/4¼
Welwyn	1/8½	1/4
Welwyn Gar. City	1/9½	1/4¾
Wells (Norfolk)	1/6	1/2
West Bromwich	1/9½	1/4¾
Westcliff-on-Sea	1/9	1/4¼
Weston-super-Mare	1/8½	1/4
Weybridge	1/8½	1/4
Weymouth	1/7½	1/3¾
Whitby	1/8½	1/4
Whitstable	1/7½	1/3¾
Widnes	1/9½	1/4¾
Wigan	1/9½	1/4¾
Wigton	1/8	1/3½
Willington	1/9½	1/4¾
Wilmslow	1/9½	1/4¾
Winchester	1/8	1/3½
Windermere	1/8	1/3½
Windsor	1/8½	1/4
Wisbech	1/7	1/2¾
Witham	1/7½	1/3¾
Woking	1/8	1/3½
Wokingham	1/7½	1/3¾
Wolverhampton	1/9½	1/4¾
Woodbridge	1/7	1/2¾
Worcester	1/9	1/4¼
Workington	1/8	1/3½
Worksop	1/9	1/4¼
Worthing	1/7½	1/3¾
Wrexham	1/9	1/4¼
Wroxham	1/7	1/2¾
Wycombe	1/8½	1/4
Wymondham	1/6½	1/2½
Yeovil	1/8	1/3½
York	1/9½	1/4¾

* Painters 1d. less than other Craftsmen. † Plus 2d. per working day. ‡ Plasterers 1/11½

¶ Tradesman's Labourers, 1/5½. Navvies and General Labourers 1/4¾.

§ Joiners, Plumbers, Bricklayers, Tilers and Masons receive 2/- per week or 4d. per day Tool Money.

For Building Trade Wages in Scotland, see page 540.

PRICES CURRENT OF MATERIALS*

Note: Owing to the exceptional circumstances which prevail at the present time prices of materials should be confirmed by inquiry. The prices for soft woods are for cash on delivery, and are subject to adjustment when the increased price of £22 per standard for national released stocks is finally fixed. At present linseed oil and genuine spirits of turpentine can only be supplied in cans in small quantities.

BRICKS, &c.

Delivered to site, City and Central Area, Full Lorry Loads.

	£ s. d.
Best Stocks	4 18 0
Second Hard Stocks	4 11 0

Per 1,000. Delivered at London Goods Stations.

2½ in. Phorpres. A discount of 6d. per 1,000 only monthly account.	King's Cross Station per 1,000. s. d.	To sites in W.C. District. per 1,000 s. d.
Pressed	51 0	57 0
Keyed	53 0	59 0
Single Bullnose	71 0	77 0
Rustics	71 0	77 0
Whites	71 0	77 0

	£ s. d.
White Midhurst Facing Bricks (delivered London site)	3 12 6
Best blue Pressed Staffs. (London Stns.)	8 18 0
Do. Bullnose (London Stns.)	9 8 0
Blue Wire Cuts (London Stns.)	7 15 6

Best Stourbridge Fire Brick (London Stns.):—
2½ in. 8 0 0 3 in. 9 15 0

GLAZED BRICKS. (London Stns.)

Best White Ivory and Salt Glazed Stretcher	26 0 0	D'ble Str'tch'rs	34 10 0
		D'ble Headers	31 10 0
Headers	25 10 0	One side & two ends	35 10 0
Quoins, Bullnose and 4½ in. Flats	32 10 0	Two sides & one end Splays and Squints	36 10 0
			34 0 0

Second Quality, £2 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours. Hard Glaze, £5 10s. extra over white.

PARTITION SLABS.

Delivered London Area.

"PHORPRES" HOLLOW PARTITION BLOCKS.

2" per yd. sup.	2 3	3" per yd. sup.	2 9
2½ " "	2 6	4" " "	3 1

CLINKER CONCRETE.

2" per yd. sup.	1 6	3" per yd. sup.	2 0
2½ " "	1 8	4" " "	2 4

CRANHAM TERRA COTTA.

2" per yd. sup.	3 0	3" per yd. sup.	3 8
2½ " "	3 6	4" " "	4 7

HEMPSTEAD—KEYED TWO SIDES.

12" x 9" x 2"	2 6
12" x 9" x 2½"	2 9
12" x 9" x 3"	3 0
12" x 9" x 4"	3 9

Per yard super d/d. Free on site, London.

SAND.

Thames Ballast	7	9 per yd.
Pit Ballast	7	3 " "
Pit Sand	9	9 " "
Washed Sand	10	9 " "
¾ in. Shingle	8	0 " "
¾in. Broken Brick	12	0 " "
Pan Breeze	8	3 " "

delivered 2 miles radius Paddington.

CEMENT.

Best British Portland Cement. Standard Specification delivered London Area.

	£ s. d.
4 ton loads and upwards site Per ton	2 4 6
1 ton to 4 tons site	2 7 6
Alongside Vauxhall in 80 ton lots	2 2 0
"Ferrocrete" Rapid Hardening Cement—	
4 ton loads and upwards site	2 10 6
1 ton to 4 tons site	2 13 6
Alongside Vauxhall in 80 ton lots	2 8 0

Stored in Reserved Bins at works. 1/6 per ton extra.

"Aquacrete" Water Repellent, "Blue Circle" cement, 30/- per ton extra or ordinary "Blue Circle" prices.

"Colorcrete" Nos. 1 and 2. Coloured Rapid Hardening Portland Cement	3 14 6
"Colorcrete" not rapid hardening, according to colour, from £7 to £15 10s. per ton.	
"Snowcrete" White Portland Cement	9 5 0
Super Cement (Waterproof)	3 14 6

NOTE.—Paper bags will be charged at the rate of 5/- nett per ton. Jute sacks charged 1s. 9d. nett each and 1/6 nett each allowed if returned to works within two weeks, in good condition.

Carriage will be paid by makers on returned empty jute sacks.

Roman Cement £7 5 Keene's Cement, White £6 10 0
Parian Cement 6 10 " " Pink 6 5 0
Cementone Colours for cement according to tints per cwt. from £2 16s. 0d.

PLASTER.

	£ s. d.		£ s. d.
Coarse, Pink	3 12 6	Sirapite, Coarse	4 3 0
" White	4 0 0	" Finish	4 11 0
Pioneer	4 3 0		

Above prices for 4-ton loads and over London Area.

Best Ground Blue Lias Lime	2 17 6	Grey Stone Lime	2 12 6
		Chalk Lime	2 12 6
Granite Chippings	1 10 0	Hair per cwt.	2 7 6

NOTE.—Sacks are charged 1s. 9d. each, and credited 1s. 6d., if returned in good condition within three months, carriage paid.

Stourbridge Fireclay in sacks 37s. per ton at rly. dep.

STONE.

	s. d.
BATH STONE.—Delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	2 11½
BEER STONE—RANDOM BLOCK— Free on rail at Seaton Station. per ft. cube	2 3
Delivered free on rail Nine Elms, S.R. "	3 1½

Selected approximate size one way, 1d. per cubic ft. extra, selected approximately three sizes or for special work, 3d. per cubic ft. extra.

PORTLAND STONE—	s. d.
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, S. Rly., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 6
Do. do. delivered on road waggons as above stations, per ft. cube	4 6
White basebed 3d. per ft. cube extra.	
NOTE.—1d. per ft. cube extra for every ft. over 20 ft. *average* and ½d. beyond 30 ft.	
HOPTON-WOOD STONE— F.O.R. Quarries, Wirksworth, Derbyshire, Random blocks from 10 ft. and over P.ft.cb.	14 0
Sawn two sides	22 6
HOPTON-WOOD STONE— Sawn three or four sides	27 9
YORK STONE, BLUE—*Robin Hood Quality.* Delivered at any Goods Station, London.	
6 in. sawn two sides landings to sizes (under 30 ft. super) per ft.super	5 6
6 in. rubbed two sides, ditto "	6 3
3 in. sawn two sides slabs (random sizes) "	2 7
2 in. to 2½ in. sawn one side slabs (random sizes) (paving) "	1 8½
1½ in. to 2 in., ditto "	1 4½
HARD YORK— Delivered at any Goods Station, London.	
Scrappled random blocks. per ft. cube	6 10
6 in. sawn two sides landings to sizes (under 40 ft. super) per ft.super	5 7½
6 in. rubbed two sides, ditto "	6 9
4 in. sawn two sides slabs (random sizes) "	3 5
3 in. ditto ditto "	2 8
2 in. self-faced random flags Per yd. super	8 9

CAST STONE.

Delivered in London are in full van loads, per ft. cube: Plain, 7s. 6d. Moulded, 8s. 6d. Sills, 10s. 0d.

HARD WOOD.

1 INCH AND UP THICK.

Average price for prime quality.	£ s. d.
Dry Austrian Wainscot, per ft. cube	0 17 0
Dry American and/or Japanese Figured Oak, per ft. cube 10 6 to	0 13 0
Dry American and/or Japanese plain Oak, per ft. cube	0 11 6
Dry sq. edged Honduras Mahogany, per ft. cube	0 15 0
Dry log-cut Honduras Mahogany, per ft. cube 12 6 to	0 16 0
Dry Cuba Mahogany, per ft. cube	0 18 0
Dry Teak, per ft. cube	0 14 0
Dry American Whitewood, per ft. cube	0 10 6
Dry Australian Walnut, per ft. cube	0 19 0
Dry Queensland Silky Oak, per ft. cube	0 12 6
Dry African Mahogany, per ft. cube	0 10 0
Dry African Whitewood, per ft. cube	0 8 0
Dry English Wainscot Oak, per ft. cube	0 16 0
Best Scotch Glue, per cwt.	3 0 0
Liquid Glue, per cwt. 4 7 0 to	5 10 0

SOFT WOOD.

MERCHANTABLE BRITISH COLUMBIAN PINE.

	Minimum. £ s. d.	Maximum. £ s. d.
Scantlings in imported sizes, 2in. by 3in. to 4in. by 11in.	43 10 0	53 0 0

Having secured the Contract— What about the Steel Scaffolding!

TUBULAR

—S & C—

SCAFFOLDING

For the lowest Prices apply to the Oldest Firm in The Scaffolding Trade.

STEPHENS & CARTER LTD.

The British Steel Scaffolding Co.

731-761, HARROW RD., N.W.10.

Telephone No. Ladbroke 1191 (6 lines).

PLANED BOARDS.

PRIME CLEAR BRITISH COLUMBIAN PINE.

	Per standard. £ s. d.
1in. by 11in. } 1in. by 9in. }	67 10 0

	Per square. s. d.
1in. plain edge flooring	53 0
1¼in. ditto	66 6
1in. tongued and grooved	53 0
1¼in. ditto	66 6

MATCHING.

	Per square. s. d.
⅝in.	37 6
¾in.	42 0
1in.	55 0

SLATES.

First quality slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate Station. Per 1,000 actual.

	£ s. d.		£ s. d.
24 by 12	31 13 6	18 by 10	16 15 0
22 by 12	26 12 0	18 by 9	15 7 6
22 by 11	23 18 6	16 by 10	14 11 6
20 by 12	23 8 0	16 by 8	11 10 0
20 by 10	21 0 0		

TILES.

Delivered at London rate stations in full truck loads of not less than 6 tons. Per 1,000 f.o.r. London

Best machine-made tiles from Broseley or Staffordshire district	£4 10 0
Ditto hand-made ditto	5 7 6
Ornamental ditto	5 12 6
Hip and valley tiles (per dozen) Hand-made	0 9 0
Machine-made	0 8 6

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—	£ s. d.
R.S. Joists, cut and fitted	£22 10 0
Plain Compound Girders	25 0 0
" Stanchions	27 10 0
In Roof Work	32 10 0

NOTE.—These prices are for standard pieces and not special pieces of an awkward nature.

MILD STEEL ROUNDS.—To London Stations, per ton.

Diameter.	£ s. d.	Diameter.	£ s. d.
¼ in.	22 5 0	⅛ in. to ½ in.	20 15 0
⅝ in.	21 5 0	⅝ in. to 2½ in.	20 5 0

WROUGHT TUBES AND FITTINGS.

Deliveries from works.

Deliveries from London stock further 2½% gross.

	Tubes. ½"/6" %	Tubulars. ½"/6" %	Fittings. 10/17 and 19/24 %	Flanges. ½"/2" %	Flanges. 2½"/6" %
Light weight	55½	—	48	51½	58
Heavy weight	48½	48½	40½	41½	50½
Galv.lightweight	44½	—	39½	40½	49½
Galv.heavyweight	35½	35½	31½	30½	41½

Tubes and tubulars sizes ½"/½" inclusive, charged extra of 5% less gross.

Fittings. Figs. 25/34 5% less gross discount.

Terms.—Nett cash end of month following date of invoice. Carriage paid on lots of £10 nett value and over.

C.I. HALF-ROUND GUTTERS—London Prices ex Works. per yd. in 6 ft. lengths.

	Gutters.	Nozzles.	Stop ends.
3 in.	1/4½	1/1	4d.
3½ in.	1/5½	1/2½	4d.
4 in.	1/5½	1/4½	6½d.
4½ in.	1/6½	1/8	7½d.
5 in.	1/10½	1/11½	8d.

Q.G. GUTTERS.

3 in.	1/9	1/5½	4½d.
3½ in.	1/11½	1/5½	6d.
4 in.	1/11½	1/6½	7d.
4½ in.	2/0½	1/9½	8d.
5 in.	2/6	2/0½	9½d.

RAIN WATER PIPES.

Per yd. in 6 fts.	Pipe.	Bends. Stock	Branches. angles.
2 in.	2/0½	1/4½	2/0
2½ in.	2/1½	1/6½	2/4½
3 in.	2/7½	1/11½	2/10½
3½ in.	3/1	2/3½	3/4½
4 in.	3/6½	2/9½	4/0½

NETT PRICES.

Tonnage allowance—4-ton lots, 5 per cent.
2-ton lots, 2½ per cent.

L.C.C. COATED SOIL PIPES.—London Prices, ex Stock.

Per yd. in 6 fts.	Pipe.	Bends.	Branches.
2 in.	3/4½	2/4½	2/10½
2½ in.	4/0½	2/7½	3/7½
3 in.	4/4½	2/10½	4/3½
3½ in.	4/5½	3/7½	5/0½
4 in.	4/10	4/0½	5/9½

L.C.C. COATED DRAIN PIPE.

	Pipe.	Bends.	Branches.
3 in. per yd. in 9 fts. cwt. qr. lbs.	5 5	6/3	9 11
4 in. 1 1 20.	7/11	7/1	12/6
5 in. 1 2 22.	9/7	12/9	19/3
6 in. 2 0 6	11 5	14/8	25/6

Gaskin 65/- per cwt.

* The information given on this page has been specially compiled for THE BUILDER, and is copyright. The aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information. Prices are subject to 2½ per cent. cash discount.

PRICES CURRENT OF MATERIALS—(contd.)

	Per ton basis in London. £ s. d.				£ s. d.
IRON.—Staffordshire Crown, Merchant quality	16	12	6	to	17 17 6
IRON—Staffordshire Marked Bars	19	10	0	to	21 10 0
Mild Steel Bars	17	8	6	to	18 18 6
Mild Steel Hoops	19	2	6	to	19 12 6

	Ex Merchant's Stock, per ton (two-ton lots). £ s. d.				£ s. d.
Soft Steel Sheets, C.R. and C.A.—					
20 gauge	21	10	0	to	23 17 6
24 gauge	21	15	0	to	23 12 6
26 gauge	22	10	0	to	24 7 6
Galvanised Corrugated Sheets, 6 ft. to 9 ft.—					
20 gauge	23	11	3	to	24 16 3
24 gauge	24	1	3	to	25 6 3
26 gauge	25	6	3	to	27 1 3
Galvanised Flat Sheets, C.R. and C.A.—					
20 gauge	25	1	3	to	26 18 9
24 gauge	25	11	3	to	27 8 9
26 gauge	26	16	3	to	28 13 9

	Per ton. £ s. d.				£ s. d.
Cut Nails, 3 in. and up	23	10	0	to	25 0 0

ALL NETT.

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

COPPER.

Seamless copper tubes (basis)	per lb. 1/3
Strong sheet	,, 1/6
Thin sheet	,, 1/7
Copper nails	,, 1/6
,, wire	,, 1/6

PLUMBERS' BRASS WORK.

Delivered in London.
Stamped by Met. Water Board.

CRUTCH HEAD S.D. BIB COCKS FOR IRON. EASY CLEAN.

½ in.	¾ in.
34/-	53/- per doz.

CHROMIUM PLATED TOILET S.D. BIB COCKS FOR IRON. EASY CLEAN.

½ in.	¾ in.
50/-	68/- per doz.

S.D. STOP COCKS FOR IRON.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	
37/6	53/-	87/-	202/-	288/-	460/-	per doz.

S.D.S. COCKS WITH TWO UNIONS FOR LEAD.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	
47/-	75/6	120/-	226/-	360/-	588/-	per doz.

DOUBLE NUT BOILER SCREWS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	
8/10	9/9	15/9	27/3	44/-	63/6	per doz.

HEAVY CROYDON BALL VALVES. SCREW IRON.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	
45/-	73/-	120/-	204/-	260/-	per doz.

CAPS AND SCREWS.

1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.	
10/6	12/9	19/3	34/-	48/-	53/-	per doz.

BRASS SLEEVES.

1½ in.	2 in.	3 in.	3½ in.	4 in.	
9/9	12/6	22/6	33/-	42/-	per doz.

DRAWN LEAD TRAPS WITH BRASS CLEANING SCREWS.

	1¼ in.	1½ in.	2 in.	3 in.	
8 lb. Lead P.	29/-	38/-	54/-	93/-	per doz.
8 lb. Lead S.	36/-	42/-	67/-	120/-	,,

SOLDER.—Plumbers, 1/5. Tinmen's, 1/8. Blow pipe, 1/10 per lb.

PAINTS, &c.

	£ s. d.
Raw Linseed Oil, in drums ..... per gallon	0 5 4
Boiled ,, ,, in drums ..... ,,	0 5 7
Turpentine, in drums (10 gals.) ..... ,,	0 5 3
Genuine Ground English White Lead, per ton (In not less than 5-cwt. casks).	61 0 0
Extra for 1-cwt. kegs over 5-cwt. casks is 2/9 cwt.	
GENUINE WHITE LEAD PAINT "Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Morganswyte," "Polacco," "J" Brand, and other best brands (in 14 lb. tins) not less than 5-cwt. lots per ton delivered	83 10 0
Red Lead. Dry (packages extra) .. per ton	52 0 0
Best Linseed Oil Putty (1 ton lots) per cwt.	0 17 1½
Size, XD quality ..... fkn.	0 3 6

Turpentine substitute can be obtained and prices vary according to the quality from 2/9 gallon upwards.

VARNISHES, &c.

		Per gallon.
Oak Varnish	Outside	0 14 0
Fine do.	,,	0 16 0
Fine Copal	,,	0 18 0
Pale Copal	,,	1 0 0
Pale Opal Carriage	,,	1 4 0
Best do.	,,	1 12 0
Floor Varnish	Inside	0 13 0
Fine Pale Paper	,,	0 18 0
Fine Copal Cabinet	,,	1 2 0
Fine Copal Flatting	,,	1 0 0
Hard Drying Oak	,,	0 18 0
Fine Hard Drying Oak	,,	0 19 6
Fine Copal Varnish	,,	1 0 6
Pale do.	,,	1 12 0
Best do.	,,	1 2 6
Best Japan Gold Size		1 12 6
Best Black Japan		0 10 0
Oak and Mahogany Stain (water)		0 12 0
Brunswick Black		0 7 6
Berlin Black		0 14 0
Knotting (patent)		0 15 0
French and Brush Polish		0 12 0
Liquid Dryers in Terebene		0 9 0
Cuirass Black Enamel		0 7 0

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

ORDINARY GLAZING QUALITY (O.Q.) AND SELECTED GLAZING QUALITY (S.Q.).

PER FOOT SUPER.

In sizes not exceeding 80 in. long or 48 in. wide or 110 united inches.

	O.Q.	S.Q.
18 oz. in 300 ft. cases	2½d.	2¾d.
24 oz. ,, 200 ft. ,,	3½d.	4d.
26 oz. ,, 200 ft. ,,	3¾d.	4¼d.
32 oz. ,, 200 ft. ,,	5½d.	6¼d.
24 oz. ,, 300 ft. ,,	3½d.	3¾d.
26 oz. ,, 300 ft. ,,	3¾d.	4¼d.
32 oz. ,, 300 ft. ,,	5¼d.	6¼d.
18 oz. Obscured Sheet		5¾d.
24 oz. Obscured Sheet		6¼d.
Fluted, 21 oz.		9d.
Enamelled, 18 oz.		5¼d.
,, 24 oz.		6¾d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE AND FIGURED CATHEDRAL, ETC., IN CUT SIZES.

	Per ft.
Rolled plate, ¼ in.	5¾d.
Rough cast double rolled, ⅛ in.	6¼d.
Rough cast double rolled, ¼ in.	6¾d.
Figured rolled, and Cathedral, white	6¾d.
Figured rolled and Cathedral, tinted	9¼d.
Rolled Sheet	6d.
Reeded, Broad Reeded, Cross Reeded and Chevron Reeded, ¼ in. thick	0 10½

Rolled plate is the same price as rough cast double rolled.

	Per ft. s. d.
Wire Rolled, ¼ in. thick	0 9½
Wired Cast, ¼ in. thick	0 9½
Georgian Wired Cast	0 10
"Calorex" Sheet, 21 oz.	2 6
,, ,, 32 oz.	4 0
,, Cast, ¼ in. thick	0 10
,, ,, ⅜ in. thick	1 0
,, ,, ½ in. thick	1 2
Non Actinic Glass, ¼ in. thick	0 9½
,, ,, ⅜ in. thick	1 0
,, ,, ½ in. thick	1 2

"VITA" GLASS.

	Per ft. s. d.
"Vita" Plate Glass, about ⅜ thick: To 7 ft. super	5 0
Over 7 ft. super	7 6
"Vita" Sheet Glass, about 18/20 oz.	2 0
Cathedral "Vita" Glass: ¼" thickness	2 0
5/16" ,,	3 0
3/16" Georgian Wired "Vita" Glass	3 6

LEAD, &c.

(Delivered in London.)	Per ton. £ s. d.
LEAD.—Sheet, English, 4 lb. and up	34 10 0
Pipe in coils	34 0 0
Soil pipe	39 10 0
Compo pipe	41 5 0

NOTE.—Country delivery, 20/- per ton extra, lots under 3 cwt. 4/- per cwt. extra and over 3 cwt. and under 5 cwt., 2/6 per cwt. extra. Cut to sizes, 4/- per cwt. extra.

Old lead, ex London area, at Mills ..... per ton £18 0 0

BUILDING TRADE WAGES IN SCOTLAND

Following are grade rates authorised by the Scottish N.J.C. from October 1. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur.

Grade Classification	A	A¹	A²	A³	B	B¹
Craftsmen	1/10	1/9½	1/9	1/8½	1/8	1/7½
Labourers	1/4½	1/4½	1/3¾	1/3½	1/3	1/2¾

Aberdeen	A	Dumfriesshire	A²	Inverness	*	Perthshire	A²
Ayrshire	A	Dundee	A	Inverurie	A¹	Peterhead	A¹
Banff	B	Dunoon	A	Kincardineshire	A²	Renfrewshire	A
Berwickshire	A²	East Fife	A	Kinross-shire	A	Rothesay	A
Bridge of Allan	A	East Lothian	A	Lanarkshire	A	Roxburghshire	A²
Broughty Ferry	A	Edinburgh	A	Midlothian	A	St. Andrews	A
Clackmannanshire	A	Fifeshire	A	Monifieth	A	Selkirkshire	A²
Doune	A	Forfarshire	A²	Moray and Nairn	B	Stewartry	A²
Dunblane	A	Glasgow	A	Newport	A	Stirlingshire	A
Dumbartonshire	A	Greenock	A	Peeblesshire	A²	Stornoway	A²
Dumfries	A¹	Hamilton	A	Perth	A	Tayport	A
						West Lothian	A

* This town has its own rates: Masons, 1/8; Carpenters, 1/8; Slaters, 1/8; Plumbers, 1/8½; Plasterers, 1/9 but 1/9½ is paid owing to the scarcity at present; Painters, 1/8 and Labourers, 1/3½.

The information given in this table is copyright. Rates of wages in England and Wales are given on page 538.

THE SCOTTISH BUILDER

NEW BUILDINGS

CUPAR.—OFFICES.—The Fifeshire C.C. has decided to carry out alterations and extensions to the police offices, etc. Mr. George Sandilands is the County Architect.

GLASGOW. — ADDITIONS. — Mr. Thomas Somers, Office of Public Works, is the architect for new accommodation at the various children's hospitals.

Fencing and Gates

For Government Contracts and similarly important present-day requirements, let Boulton & Paul carry the whole of your Fencing commitment. Skilled erectors, first-class materials—in all, **a dependable service for urgent contracts.** Estimates without delay. STEEL BUNKS can be supplied in large or small quantities. For quotations 'phone Norwich 851 (London: VIC. 8001) or write

Boulton & Paul Ltd

London: Horseferry House, S.W.1 Norwich

GLASGOW.—BUILDING.—Plans prepared for new buildings for Messrs. John MacLaren and Co., Ltd. The architect is Mr. James Reid, 79, West Regent-street, Blythswood.—Plans approved for alterations and additions to chair repository, etc. Messrs. Bryden, Robertson and Boyd, architects, 147, Bath-street, Blythswood. — New garage is to be erected for Messrs. W. and J. Bowie, Ltd. The architects are Messrs. Miller and Black, 132, West Regent-street.—Plans prepared for Messrs. Fraser Brothers and Co., Ltd., for reconstruction and additions at their new warehouse.

GREENOCK. — EXTENSION. — Plans prepared for reconstruction and extension to the works of Messrs. Barr and Co., Ltd. The architects are Messrs. Wright and Kirkwood, 26, Blythswood-sq., Glasgow.

HAWICK.—ADDITIONS.—Plans prepared and approved for additions, for Messrs. J. Turnbull and Sons, Ltd.

NEW COMPANIES

THE particulars quoted below have been compiled by Messrs. Jordan & Sons, Ltd., Company Registration Agents, of 116 and 117, Chancery-lane, W.C.2, from the documents available at the Companies Registry.

BEN PARKER, LTD. (363853).—Registered November 8. Works contractors, road-makers, etc. Nominal capital: £6,000. R. Parker, Norton Hall, Letchworth.

JOHN HINCHLIFFE AND SON (HUDDERSFIELD), LTD. (363884).—Registered November 9. Bradley Mills, Leeds-rd., Huddersfield. Builders, contractors, etc. Nominal capital: £100.

E. FORREST AND CO., LTD. (363906).—Registered November 12. Midland Bank-chambers, Otley. Builders, public works contractors, etc. Nominal capital: £100.

TRADE NEWS

Changes of Address.

The new address of Austral Sanitary Products, Ltd., is 73-75, Mortimer-street, London, W.1. Telephone : Museum 3552.

The new address of the Arpan Engineering Company, Ltd., is 73-75, Mortimer-street, London, W.1. Telephone : Museum 3552.

Incendiary Bombs and Asphalt.

The claims made by the Limmer and Trinidad Lake Asphalt Co. earlier in the war, that asphalt in roofing construction would withstand the effects of incendiary bombs, have, perhaps unfortunately, been all too fully verified during the recent air attacks on this country. This is all the more remarkable when one realises that the heat engendered by these bombs amounts to over 3,000 deg. Centigrade, but the fact remains that whilst they carbonise the surface, they do not penetrate the asphalt or make it permeable to water. To illustrate this we reproduce photographs of a 2-ft. square slab of Trinidad mastic asphalt recently removed from the roof of a well-known London building—one showing the upper surface, in which the shape of the cylinder containing the thermite is plainly distinguishable, and the other showing the under surface of the slab undamaged. The form of construction was 1 in. of asphalt in two layers on felt, on concrete.

We are informed that, speaking generally, severely damaged roofs of this nature which have escaped destruction are easily reparable and that the emergency repair units set up by the Limmer and Trinidad Lake Asphalt Co., Ltd., enable prompt attention to be given to urgent calls.

Floor Maintenance.

Floor maintenance costs, as every considerable building owner knows, are an important item of upkeep that need careful watching. Messrs. Simmonds Products, Ltd., have evolved a new technique for economical floor maintenance. Their Floor Gloss, a liquid dressing, eliminates wet scrubbing and hand polishing methods of floor treatment, and provides a glossy, non-slip surface of excellent wearing qualities and water resistance. The gloss is appropriate for use on wood, linoleum, rubber, asphaltile, magnesite, masonite, and other composition floors and painted and lacquered surfaces of all types. The wide coverage of the gloss ensures considerable economies in material, while ease of application and simplicity of maintenance greatly reduce labour costs.

Other Simmonds products, designed to ensure perfect maintenance of every type of surface, include a floor cleaner, a floor seal, a double gloss, cement finish and terrazzo finish, furniture dressing and window sheen.

Readers of *The Builder* who would care to test these products will be sent a testing kit, with fully illustrated descriptive literature, on application to Simmonds Products, Ltd., Great West-road, London.

CHARCOAL PRODUCTION

Rapid changes in the technique of charcoal burning—one of Britain's oldest industries—have now made it possible to dispense entirely with imports, states the Ministry of Supply.

Wood charcoal is a vital raw material. It is used as a case-hardening compound in the production of aero engine parts, in the manufacture of artificial silk, in the processing of rubber, and in the manufacture of cyanide for the extraction of gold.

Another form of charcoal has an important use in the filters of our gas-masks.

Before the war Britain produced less than half of the charcoal consumed, and the craft of charcoal burning, entailing a hard and solitary life, survived only in a few places. The charcoal burner's job was a constant round of digging, stacking, turning, watching and dowsing. A change in the direction of the wind, or a rainstorm, could spoil the work of weeks.

To-day, production has been more than doubled by the use of a new kind of steel kiln which can be moved from place to place, wherever suitable wood is available, and can be worked by unskilled labour under skilled supervision.

The need for importing from remote sources of supply has now been overcome, saving foreign exchange and shipping.

DON'T TENDER UNSUCCESSFULLY

SECURE CONTRACTS WITH

BEITH SKEIN

THE STEEL SCAFFOLDING CO., LTD.

"BIG BEN TOWERS," 23, OATLANDS DRIVE, WEYBRIDGE, SURREY.

'Phone: Walton-on-Thames 614 and 615.

TENDERS

The Editor welcomes authentic information for this feature from architects, surveyors or contractors. Items should reach 4, Catherine-street, Aldwych, W.C.2, not later than Tuesday morning.

Tenders for A.R.P. work will be found under "A.R.P. Schemes."

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government departments.*

Darlington. — Alterations to petrol filling station, for G. P. Thompson : — *W. S. Hutton, Ltd., Post House Wynd, Darlington.

MASTIC ASPHALT SHOWING UPPER SIDE (LEFT) AND UNDER SIDE AFTER SUBJECTION TO EFFECTS OF AN INCENDIARY BOMB. (See this page.)

Enniskillen.—Protective works against air raid damage at Union Hospital, for B.G. J. Donnelly & Sons, architects :—

R. Greenaway	£221 0 0
J. Goodwin	167 0 0
W. H. Nelson	121 0 0
*H. Pierce & Sons	113 7 6

(All of Enniskillen.)

Garforth.—53 domestic surface shelters, for U.D.C. B. J. Cornelius, E. and S. :—

C. H. Gotts, Castleford	£2,023 2 8
F. Armitage and Sons, Castleford	1,768 13 6
R. Walker and Sons, Ltd., Castleford	1,577 18 1
*R. K. Poskitt, Ltd., Beal, Nr. Goole	1,519 19 6
*L. Garbutt, Aberford	1,505 13 7

Gateshead.—Extensions to two factories, for Vickers-Armstrongs, Ltd. : — *Stanley Miller, 17, North-st., Newcastle.

Glasgow.—Work at hospital, for T.C. T. Somers, architect, Office of Public Works :— Brickwork, etc., *R. W. Stewart & Co., Ltd., Glasgow, £1,214 17s. 4d.

Howden.—3 miles of 4-in. dia. spun-iron mains, for R.D.C. John H. Haiste, Consulting E., Middleton-chambs., Lowgate, Hull :— *Squires & Sons, Ltd., Portholme Works, Selby, Yorks, £2,431 1s.

Hucknall.—Pump-house, transformer house, etc., at pumping station, for U.D.C. H. M. Aitchison, Waterworks E. :—*Bodill & Sons, Ltd., Portland-rd., Hucknall.

Lambeth. — Repairs at Tate (Central) Library, for B.C. :—*W. Bugg and Sons, £200.

London (Air Ministry).—Contracts to the value of £500 or over placed for week ended November 16 :—

Civil engineering and building work, W. Lawrence and Sons, Ltd., London; and J. Gerrard and Sons, Ltd., Manchester.

Civil engineering work, R. Costain, Ltd., London; Constable, Hart and Co., Ltd., London; John McGeogh and Sons, Ltd.,

Wallasey; Kettlewell and Co., Ltd., Hull; J. Graham, Dromore, Co. Down; and G. Wimpey and Co., Ltd., London.

Building work, Prestige and Co., Ltd., London; W. J. Simms, Sons and Cooke, Ltd., Sherwood, Nottingham; M.G. and Co., Ltd., London; Kent and Sussex (Contrs.), Ltd., Erith; Stewart McIntyre, Edinburgh; John Willmott and Sons (Hitchin), Ltd., Hitchin; William Tawse, Ltd., Aberdeen; Unit Construction Co., Ltd., Reigate; W. E. Chivers and Sons, Ltd., Devizes; E. Taylor and Co., Ltd., Littlebrough; Wm. Moss and Sons, Ltd., Loughborough; Harry Neal, Ltd., London; and J. Cryer and Sons, Fleetwood.

General maintenance work, L. Brown and Sons, Ltd., Wilmslow; Jas. Ball and Sons, Cowes; and S. H. Hill and Sons, Ltd., Mansfield.

Air filtration work, Young and Austen and Young, Ltd., London; and Hope's Heating and Lighting, Ltd., Birmingham.

¶**London (War Dept.).**—Contracts placed for week ended November 16 :—

Miscellaneous work, C. H. Hill and Sons, Ltd., Victoria-st., Mansfield; Stansell and Son (Taunton), Ltd., Billet-st., Taunton; L. Maslen and Sons, Ltd., 14, Bridewell-st., Devizes; and Old Forge Estates, Ltd., 2, Hadlow-chamb., Hadlow-rd., Sidcup, Kent.

Building work, William Sindall, Gloucester-st., Cambridge; and Thomas Gill and Son, 28, Rupert-st., Norwich.

Hutting (erection), H. P. E. Neave, Ltd., Catfield, Norfolk (two contracts); W. Norman and Son, Ltd., Brook-st., Erith; D. R. Dunthorn and Son, 16, Magdalene-st., Glastonbury: Patching and Co., 7, Warwick-st., Worthing; Griffiths Bros., Brownlow-rd., Ellesmere; Isaac Copeland and Sons, Lower Windsor-av., Belfast; and Collen Bros., Ltd., Hanover-st., Portadown (two contracts).

Penybont.—Fire station, for R.D.C. J. Simon Davies, F.S.I., S. :—

Thomas Jenkins, The Common, Whitchurch	£2,060
Bowen and Thomas, Riverside Saw Mills, Maesteg	850
Williams and Adsley, Meadow-street, Bridgend	825
P. Gaylard and Sons, Bridgend ...	785
G. Bryant, Hillcrest, Penyfai ...	634
*W. T. Williams, 19, George-street, Porthcawl	582

(Subject to approval of Welsh Board of Health.)

Roscommon.—4 cottages, for Board of Health and Public Assistance. C. E., Courthouse, Roscommon :—

		Plan C.L.21A.	Plan No. 70.
M. J. Browne ...	(asbestos slates)	£1,436	£1,445
J. Moore ...	(all-in cost)	1,200	1,250
J. Killian (all in, asbestos slates)		1,160	1,245
P. Lane ...	(asbestos slates)	1,480	1,530
T. Allen ...	(concrete tiles)	1,148	—
	(asbestos slates)	1,172	1,219
Owen Dervin ...	(concrete tiles)	1,188	1,240
	(asbestos slates)	1,176	1,223
	(Irish slates)	1,268	—
Fitzgerald & Tennant (asbestos slates) ...		1,400	1,505
Jas. McDermott ...	(asbestos slates)	1,594	1,719
Jos. Downes ...	(asbestos slates)	1,268	—
Jas. Costello ...	(asbestos slates)	1,116	1,172
Michael Brennan ...	(concrete tiles)	1,070	1,142
	(asbestos slates)	1,108	1,181

Stoke-on-Trent.—Wiring for electric light installations of 115 houses, for T.C. A. Burton, M.I.C.E. City E. :—* Hobson and Scott, Stoke-on-Trent, £1,076.

Stroud.—New central fire station, for R.D.C. : *Gee, Walker and Slater, Ltd., London, £16,679.

Tendring.—Communal shelters, for R.D.C. S. E. Carroll, M.Inst.M. and Cy.E., S. :—

W. T. Wheeler and Sons, East Bergholt	£3,500
Baker Bros., Alresford	3,440
C. H. Chaston and Co., Holland-on-Sea	3,210
E. D. Saunders and Son, Dovercourt	3,069
*Canler and Sons, Clacton-on-Sea ...	2,950

Welwyn.—Small building to accommodate water chlorination plant and appurtenant works, for R.D.C. C. B. Borthwick, E. :—*C. E. Bowyer, Builder, Welwyn, £58 14s. 3d.

B.S. SPECIFICATION

Rubber Hose with Fabric Reinforcement.

British Standards Institution has just issued a British Standard for Rubber Hose with Woven Fabric Reinforcement (No. 924), which covers air hose, air hose (rock drill and/or mining hose), low pressure water hose (for cold or hot water), high pressure water hose for washing or spraying, chemical hose and brewers' hose. This British Standard, the preparation of which was authorised by the Rubber Industry Committee of the Institution, deals with mandrel built, wrap-cured rubber hoses internally reinforced by plies of woven fabric, manufactured in lengths not exceeding 60 ft. The hose may be reinforced externally by the use of round or flat wire.

Copies may be had from the Institution, 28, Victoria-street, London, S.W.1, price 2s. each (2s. 3d. post free).

The Housing Acts : Interest on Loans.

His Majesty's Treasury have directed the Ministry of Health that the rate of interest to be charged on loans, secured on local rates, made on and after November 1, 1940, from the Local Loans Fund to Local Authorities for any purposes of the Housing Acts, the Housing (Rural Workers) Acts, 1926 to 1938, and the Small Dwellings Acquisition Acts, 1899 to 1923, shall be 3¾ per cent. The rate previously fixed was 4 per cent.

FLOORINGS
'phone
BAYswater 0163
or send your enquiry for
Wood Block, T & G Strip, Parquet (in various designs) and Composition Floorings.
TO
TURPINS PARQUET FLOORING Co. Ltd.
25 NOTTING HILL GATE, W.11
Established 1866

ROADS LIVERSEDGE INTERWOVEN HIGH TENSILE STEEL FABRIC STRUCTURES
The Liversedge Reinforced Concrete Engineering Co. Ltd.
15, Breams Buildings, E.C.4. Tel.: Hol. 3718, 6467

Boyle's Patent "Air-Pump" Ventilator
OVER TWO MILLION IN USE.
ROBERT BOYLE & SON,
Ventilating Engineers, 65, HOLBORN VIADUCT, LONDON, E.C.1. Tel. Central 4583.

HOSPITAL & SCHOOL STOVES
SOLE MAKERS OF
WRIGHT'S IMPROVED AND ALSO SHORLAND'S PATENT WARM AIR VENTILATING PATTERNS.
GEO. WRIGHT (LONDON) LTD
10 NEWMAN ST. OXFORD ST. LONDON, W.1

BUY BRITISH
FLOORINGS
WOOD BLOCK PARQUET
SOLID T&G HARDWOOD
PANELLING
POINT PLEASANT LONDON S.W.18
Stevens & Adams Ltd.
PHONE PUTNEY 5611 (6 lines)

• G·V·D •
LIGHTING
We are pioneers of efficient, effective and economical lighting. Correct lighting principles are being better appreciated, thanks to Mr. G. V. Downer's perseverance.
BETTER LIGHT—BETTER SIGHT.
In our case this does not mean more light, but better distribution, diffusion and freedom from glare and shadows. These can be obtained with a *saving of 50% on your present lighting bill* by using our system.
G·V·D ILLUMINATORS LTD.
ALDWYCH HOUSE, LONDON, W.C.2. Tel.: HOLborn 7277-8

For SHELTERS consult
W.&M.NEGUS,LTD
STATION WORKS
KING JAMES ST., S.E.1
WATerloo 5474